TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL AND DIRECT SUPPORT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)

TRUCK, FIRE FIGHTING, 4x4,

MODEL 1350 PKP/200 AFFF

NSN 4210-00-484-5729
ANSUL FIRE PROTECTION

HEADQUARTERS, DEPARTMENT OF THE ARMY

29 DECEMBER 1986

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MARINETTE, WI 54143

CONTRACT DAAK01-78-C-1667

SERIAL NO.	IDENTIFICATION NO.	REGISTRATION NO.
001	AR185JHA31567	CH9906
002	AR185KHA17091	CH9907
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004	AR185KHA18569	CH9909
005	AR185KHA18637	CH9910

Part No. S-63086

ANSUL

ANSUL FIRE PROTECTION
MARINETTE WI 54143

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REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistake or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommend Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, U.S. Army Troop Support Command, ATTN: AMSTR-MCTS, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798. A reply will be furnished directly to you.

REPORTING EQUIPMENT IMPROVEMENTS (EIR's)

If the Fire Fighting Truck needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you do not like about your equipment. Let us know why you do not like the design or performance. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at: U.S. Army Troop Support Command, ATTN: AMSTR-QX, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. We will send you a reply.

MANUAL SCOPE

This manual is intended for use with the Ansul Twin-Agent Fire Fighting Truck. Those who operate, recharge, inspect, or maintain this fire suppressing/securing vehicle should read this entire manual. Specific sections will be of particular interest depending upon one's responsibilities.

The purpose of this manual is to familiarize personnel with the operation and maintenance of the twin-agent fire fighting truck. The operator of the fire fighting truck is responsible for all minor maintenance and adjustments necessary to keep the fire suppressing/securing systems and emergency vehicle equipment in ready condition. Higher maintenance is responsible for the major maintenance, service, and repair as necessary to bring the vehicle back into the operating condition.

The information contained in this manual is limited to the fire suppressing/securing system, serial numbers 001 thru 005 and emergency equipment mounted on the International Truck Model 1854 - 4x4. This manual contains the necessary information needed to prepare for use, operate, recharge, inspect, maintain, service, and repair the fire suppressing/securing system.

The contractor warrants for a period of one year all supplies furnished under Contract DAAK01-78-C-1667 to be free from defects of design, material, and workmanship; and conforms with specifications and all other requirements of this contract.

Applicable publications include:

Federal Sign and Signal Corporation: Siracom II Siren/Control System- Model PA2100 with FN 900 Microphone and TS-100 Speaker designed to be installed in the Model 24 Light Bar Assembly.

> Publications include: Dome Assembly Installation Instructions - No. 256A358; FN 900 Adaptor for PA override operation Installation Instructions - No. 256A99B; Model PA .2100 Installation and Service Instructions - No. 255A150G; Service and Parts Index - No. 256A359.

Unity Manufacturing Company: Model AG 6-inch rear decklight; No. 225 spotlight (right and left).

> Publications include: Parts Sheet - No. 105-6.

H.K. Porter Incorporated: Model PK-4 Hydraulic Rescue Kit (10 ton capacity).

> Publications include: Instruction Book - No. 10119; Instruction Envelope - No. ISM 200; Instruction Sheet - No. 1PF10; and Service Station Listing - No. 10120.

Hurst Performance Incorporated: Model 3620025 Rescue Tool.

> Publications include: Instruction Manual - No. 159 0082.

INTRODUCTION

Sierra Company: Model CRK5 Sierra Rescue Crash Tool Kit.

Publications: None, contents listed in vendor's publication section.

International Harvester Company - Truck Division: Model 1854 Truck (4x4).

Publications include: Service Manual (3 volumes) - No. CTS2311; Parts. Catalog - No. MT- 140. -

Paratech Incorporated, Formerly Partner Industries: Model K-1200 Rescue Saw.

Publications included: Instruction Book - No. 701042; Parts List - No. 711142.

SYSTEM DESCRIPTION

The Ansul Twin-Agent Fire Fighting Truck is designed for combating fire via roof-mounted turrets or rear-mounted hand-lines which can be used together or independently.

The truck is the basic International Model 1854, 4x4 chassis with a service body attached, and an Ansul 1350 PKP/200 AFFF fire suppressing/securing system mounted on the truck bed.

The fire fighting truck also includes: a roof-mounted warning light bar with built-in speakers controlled by an indicator switch; an electric siren, public address, and radio amplifier system with foot control switch; two rear-mounted decklights; two forward-mounted spotlights; and rescue equipment packages.

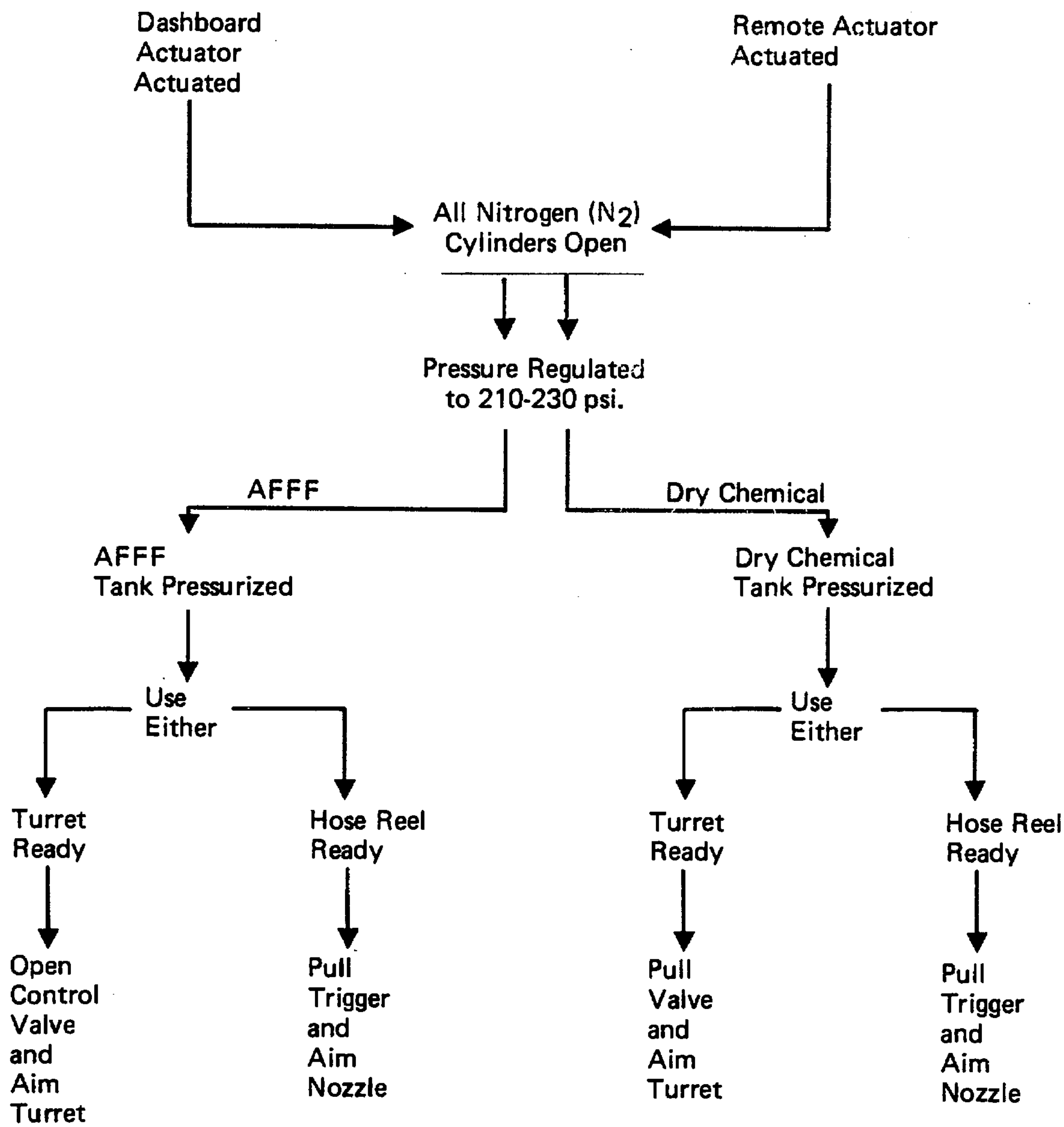
The truck is a completely self-contained fire fighting vehicle. The dry chemical fire suppression system uses 'Purple-K' as the fire extinguishing agent and nitrogen and the expellant gas The AFFF system uses AFFF (aqueous film-forming foam) as the extinguishing agent and nitrogen as the expellant gas. Both systems can be actuated simultaneously by using either the remote actuator (located at the hose reel) or the dashboard actuator (located in the truck cab). The twin-nozzles and twin-turrets can be used either independently or simultaneously.

The dry chemical system can be used on Class B and Class C fires only. It provides rapid knockdown of Class A fires, but must be used in combination with the AFFF agent

The AFFF (aqueous film-forming foam) system is designed for use on Class A and B fires only. It must not be used on Class C fires which involve energized electrical equipment.

CAUTION: The AFFF solution is a mixture of Ansulite AFFF Concentrate and water.
It will freeze at 32°F.

The following chart illustrates the sequence of operating events and the options available with this system:



TRUCK EQUIPMENT AND ACCESSORIES

Warning Light: The light bar is mounted on the roof of the cab and includes a built-in public address speaker. The light can be operated by means of a separate switch on the dashboard instrument panel. The switch contains a red indicator light which is activated when the warning light is in use.

Electronic Siren, Public Address, and Radio Amplifier System: The system contains selector controls for siren, public address, or radio amplification through an external speaker mounted in the warning light bar assembly. The amplifier, its controls, and the microphone are mounted in the cab in a location accessible to the driver or passenger. The siren can be operated by either the floor-mounted switch or the standard horn actuator.

Spotlights: Two decklights are mounted at the rear of the truck on top of the service body. Two spotlights are mounted on the side of the truck cab. The rear lights are operated by a switch located at the bottom of each light. The cab-mounted lights can be operated from switch/handle assemblies inside the truck cab.

Rescue Equipment: A hydraulic rescue kit, aircraft rescue crash tool kit, and rescue saw are located in the service body compartments for easy access during rescue operations. To use, follow manufacturer's instructions provided with equipment.

FIRE SUPPRESSING/SECURING SYSTEM

Dry Chemical Fire Suppression System: The dry chemical system can be used on Class B and Class C fires and is very effective for exterior running and flowing Class B fires. It provides rapid knockdown of Class A fires, but must be used in combination with the AFFF agent to avoid fire reignition. The dry chemical system is mounted on the center of the truck bed behind the AFFF system.

The components of the dry chemical system include: a 1350 lb. dry chemical tank with control valves and associated piping, three 400 cu. ft. nitrogen cylinders with pressure regulators, a twin-agent hose reel serving both the dry chemical and AFFF system, a dry chemical discharge nozzle, and a dry chemical turret with pneumatic control valve.

AFFF Fire Suppressing/Securing System: The AFFF (aqueous film-forming foam) system is designed for use on Class A and B fires only. It must not be used on Class C fires which involve energized electrical equipment.

CAUTION: The AFFF solution is a mixture of Ansulite AFFF Concentrate and water.
It will freeze at 32°F.

The AFFF system is mounted behind the truck cab in front of the dry chemical system

The components of the AFFF system include: a 200 gal. solution tank with control valves and associated piping, two 400 cu. ft. nitrogen cylinders with pressure regulators, a twin-agent hose reel serving both the dry chemical and AFFF system, a AFFF discharge nozzle, and an AFFF turret with pneumatic control valve.

Nitrogen System: Five nitrogen cylinders provide the expellant gas for both the dry chemical and AFFF systems. Each cylinder contains a Quick-Opening valve with a pneumatic valve actuator for either local actuation (by pulling the Quick-Opening Lever), or remote actuation (from the dashboard or the hose reel). The cylinder valve also contains a gauge for accurate pressure readings. When the cylinders are opened, the compressed nitrogen flows from the cylinder through high pressure hose into the regulators where the pressure is reduced to 210 to 230 psi and then flows through low pressure hose into the agent tanks. This pressure forces the extinguishing agents through the discharge piping to both the hand- line nozzles and turrets. The agent flow is then controlled by the operator by opening the nozzles or turrets. Part of the nitrogen also runs through separate lines and is regulated to 125 psi to enable turret control valve operation. A safety relief valve is located on the regulators and on each extinguishing agent tank to vent excess pressure in the event of regulator malfunction.

Control Valves: The flow of nitrogen and extinguishing agent through each system is regulated by control valves. Each valve is color-coded to correspond to instructions given on the system nameplates and manual.

Hose Reel and Hoses: A rotating drum-type hose reel is mounted on a frame behind the dry chemical tank at the rear of the vehicle. The twin-agent nozzle is secured on a holder through the tie-bar, and a ring pin holds the assembly in place when not in use. A hand crank is provided for rewinding the hose after operation should the electric motor malfunction. The hose reel holds 100 ft. of twin-agent hose (two 1 in. hoses combined, one for dry chemical, one for AFFF). Piping from the agent tanks is connected to both sides of the hose reel supplying one hose reel with both dry chemical and AFFF through the twin nozzles. The operator can use either or both of the agents to fight a fire. Both the dry chemical and AFFF nozzles are mounted on single bar to enable the operator to move easily without getting tangled in the hose.

Twin Turrets: Each turret can be controlled from the cab by means of a pneumatic control valve with open-close positions. The turrets can be maneuvered either vertically or horizontally by using the turret handles located in the ceiling of the cab adjacent to the control valve.

Remote and Dashboard Actuators: The Quick-Opening cylinder valves can be opened either at the cylinders or from a remote location. Actuation from a remote location is accomplished by using either the dashboard actuator located in the truck cab, or by a remote actuator located on the hose reel frame. The dashboard actuator allows the operator to open the nitrogen cylinder valve without having to leave the cab. The remote actuator allows the operator to open the nitrogen cylinders from the hose reel area. The actuators are operated simply by pulling the ring pin and pushing a lever (remote actuator) or button (dashboard actuator). The expellant gas from a small nitrogen cartridge flows through 1/4 inch tubing to the pneumatic valve actuators which open all five of the nitrogen cylinders.

Extinguishing Agents: This system combines the effects of two agents 'Purple-K' dry chemical and ANSULITE AFFF (aqueous film-forming foam) to suppress and secure a fire. The dry chemical provides rapid knockdown of flames to gain initial control over the fire. The AFFF creates a film-forming foam to prevent fire reflash. As the foam-supported film spreads over the fire, it prevents the escape of flammable vapors, excludes oxygen from the fuel surface, and helps cool the hazard area.

TABLE OF SPECIFICATIONS

1. Vehicle

Type	Truck, Twin-Agent Fire Fighting, 24,200 GVW, Model 1854 4x4 Diesel Driven, Commercial
General Dimensions	
Length (Overall)	243.0 In.
Width (Overall)	94.0 In.
Height (Maximum)	127.0 In.
Wheelbase	162.0 In.
Gross Vehicle Weight (Rated)	24,200 Lb.
Gross Vehicle Weight (Actual)	20,200 Lb.
Chassis Manufacturer	International Harvester Company (Truck Division)
Model	1854
Type	4x4 Chassis and Cab, Diesel Driven, Commercial

2. 1350 PKP/200 AFFF Suppressing/Securing System — Ansul Fire Protection, Wormald U.S., Inc.

Dry Chemical System	
Model	1350 PKP
Type Agent	Ansul PKP (Purple "K") (Mil.-F-22287)
Expellant	Nitrogen
Capacity (Nitrogen Cylinder)	400 Cu. Ft.
Pressure Charged (Nitrogen Cylinder)	2640 PSI at 70°F
Tank Capacity	1350 Lb. (PKP)
Operating Pressure	210-230 PSI
AFFF System	
Model	200 AFFF
Type Agent	Ansul AFFF 6 Per Cent: Concentrate (Mil-F-24385C)
Expellant	Nitrogen
Capacity (Nitrogen Cylinder)	400 Cu. Ft.
Pressure Charged (Nitrogen Cylinder)	2640 PSI at 70°F
Tank Capacity	200 Gal.
Operating Pressure	210-230 PSI

TABLE OF SPECIFICATIONS (CONT)

3. Hose Reel

Manufacturer	Aero-Motive Mfg. Company
Model	EAD 29-14-19 With Electric Rewind
Dimensions	
Height	31.75 In.
Width	31.75 In.
Length	29.00 In.
Twin-Agent Hose	
Hose Diameter Dry Chemical (Inside)	1.0 In.
Hose Diameter AFFF Agent (Inside)	1.0 In.
Hose Length	100 Ft.

4. Dry Chemical Nozzle

Manufacturer	Ansul Fire Protection, Wormald U.S., Inc.
Part No.	S-27762
Hose Connection	1-1/2" Male NPTF x 1-1/2" Female NPSM Swivel Union
Rate	7.8 Lbs./Sec.
Effective Range	77.0 Ft.

5. AFFF Nozzle

Manufacturer	Elkhart Brass Manufacturing Corporation
Part No.	25501
Hose Connection	1-1/2" Male NPTF x 1-1/2" Female NPSM Swivel Union
Rate	58.3 GPM
Effective Range	60.0 Ft.

6. Dry Chemical Turret

Manufacturer	Ansul Fire Protection, Wormald U.S., Inc.
Part No.	14035
Hose Connection	2" Male NPTF x 2" Female NPSM Swivel Union
Rate	18.1 Lbs./Sec.
Effective Range	115 Ft.
Pattern Width	17 Ft.

TABLE OF SPECIFICATIONS (CONT)

7. AFFF Agent Turret

Manufacturer	Ansul Fire Protection, Wormaid U.S., Inc.
Part No.	19444
Hose Connection	2" Male NPTF x 2" Female NPSM Swivel Union
Rate	167 GPM
Effective Range	105 Ft.
Pattern Width	15 Ft.

8. Siren/PA Control System

Manufacturer	Federal Sign and Signal Corporation
Model	PA-2100 With Microphone (FN-900) Speaker (TS-100) and ASI Switch

9. Warning Light

Manufacturer	Federal Sign and Signal Corporation
Model	Aero-Dynic 24A

10. Rear Decklights

Manufacturer	Unity Manufacturing Company
Model	AG-6

11. Front Spotlights

Manufacturer	Unity Manufacturing Company
Model	225

12. Rescue Saw

Manufacturer	Paratech Incorporated
Model	K-1200

13. Hydraulic Rescue Kit

Manufacturer	H.K. Porter Inc.
Model	PK-4
Capacity	10 Ton

TABLE OF SPECIFICATIONS (CONT)

14. Crash Rescue Kit

Manufacturer	Sierra Company
Model	CRK5 SIERRA Crash Rescue Kit

15. Rescue Tool

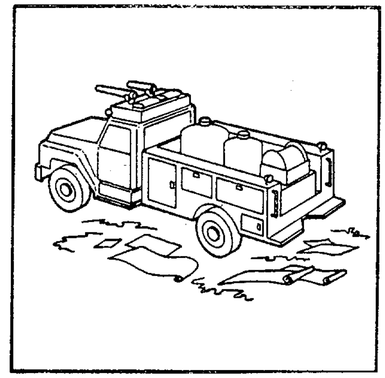
Manufacturer	Hurst Performance Inc. (Safety Products Division)
Model	3620025 (Gasoline Engine, Hydraulic Powered)

16. Floor Mounted Switch

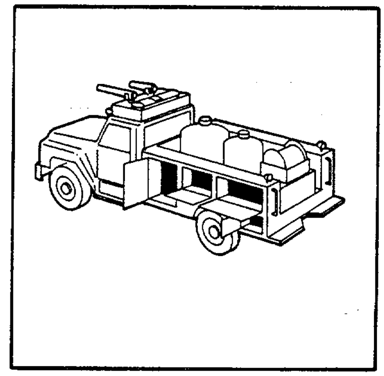
Manufacturer	C.E. Niehoff Company
Part No.	DR-139

To prepare the Ansul suppressing/securing system for placement in service:

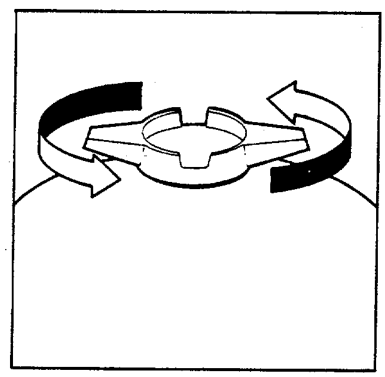
1. Remove all cord, wrapping and banding ties from system and component parts (except on hose reels).



2. Examine entire system and component parts for concealed shipping damage.



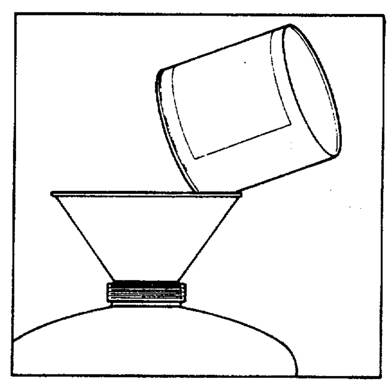
3. Remove fill cap from dry chemical tank and place funnel in opening.

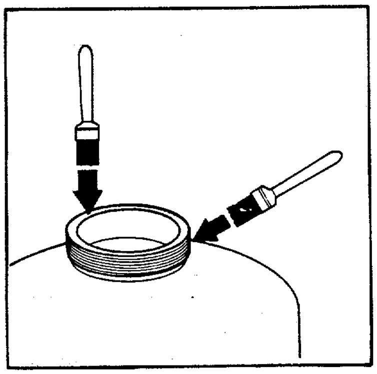


4. Fill tank to rated capacity with Ansul dry chemical specified on nameplate(s) only.

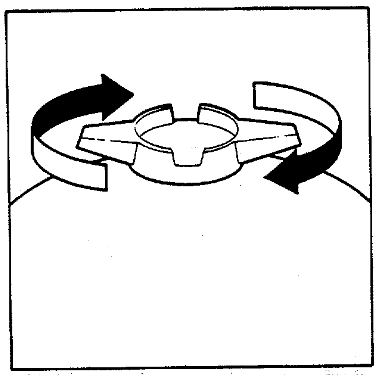
   NOTE: Certain dry chemical systems are filled before shipment.

   NOTE: Do not overfill.

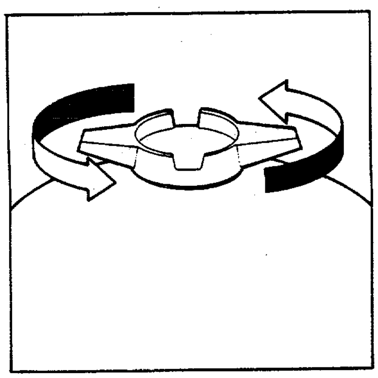




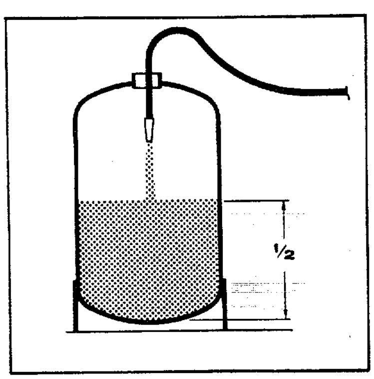
5. Clean fill opening threads and gasket seating surface.



6. Secure fill cap, hand tighten.



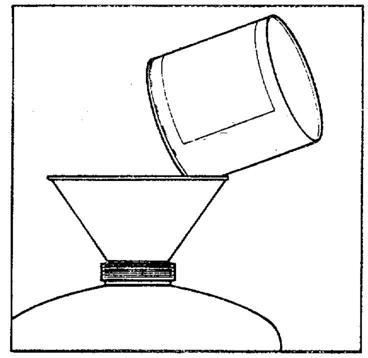
7. Remove fill cap from AFFF solution tank.



8. Fill tank one-half full with fresh tap water.

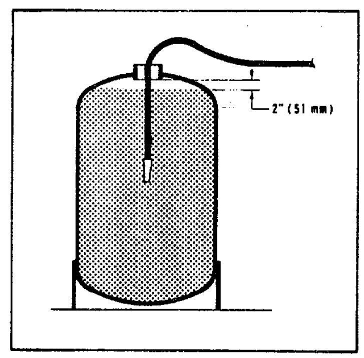
NOTE: Ansul recommends that the quality of the tap water is to be examined each time the system is charged as described on Page 1 of the Field Inspection Manual, Ansul Part No. 31274, in the back of this manual. The quality of water should be noted on the Field Inspection Record, Form No. F-7880.

9. Place funnel in fill opening and pour 13.7 gallons (51.9 1) of ANSULITE AFFF (Aqueous Film-Forming Foam) 6% Concentrate into tank.

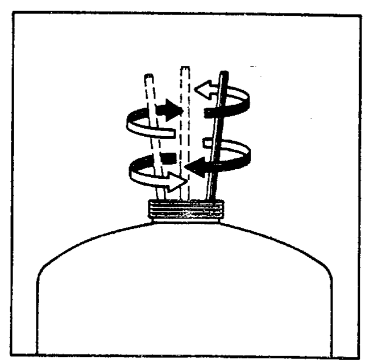


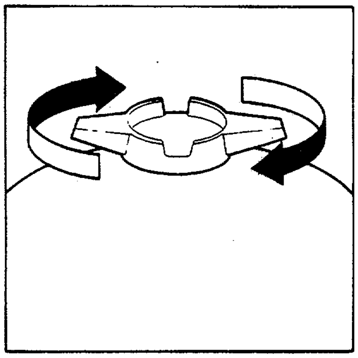
NOTE: Prior to adding the concentrate to the tank, its refractive index should be measured and recorded on the Field Inspection Record, Ansul Form No. F-7880, along with a refractive index vs. concentration curve. The procedures for these operations are covered on Page 1 of the Field Inspection Manual, Ansul Part No. 31274, at the back of this manual. It is also a good idea to record the batch number(s) from the Ansul AFFF pails on the Field Inspection Record, Ansul Form No. F-7880 (Appendix A2), for future use.

10. Submerge hose and fill remainder of tank with water to within 2 inches (51 mm) from bottom of the fill opening, reducing rate of water flow as tank becomes full.

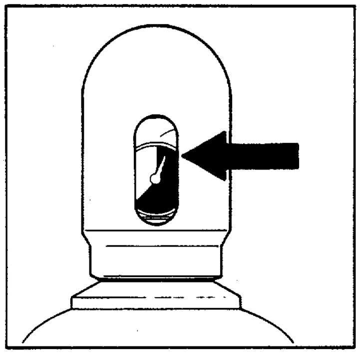


11. Stir solution for 30 seconds - use a non-metallic rod, then clean fill opening threads and gasket seating surface.

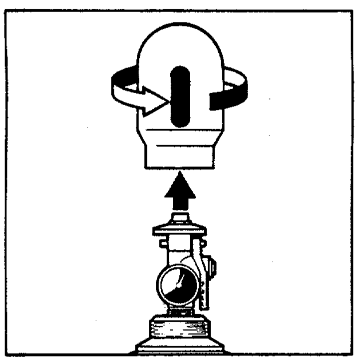




12. Secure fill cap, hand tighten.

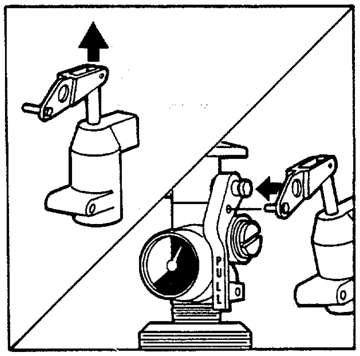


13. Read cylinder gauge(s) - pointer should be in BLACK operating range.



14. Remove safety shipping cap(s) from cylinder(s) - retain cap(s) for future use.

WARNING: MAKE CERTAIN SAFETY PLUG IS IN PLACE IN CYLINDER VALVE OUTLET BEFORE COMPLETING THE FOLLOWING STEPS.

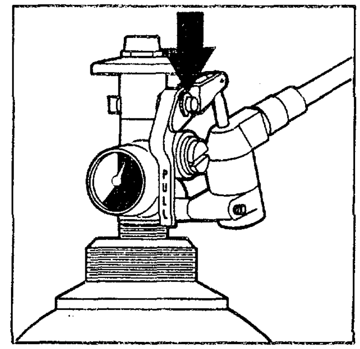


15. Install pneumatic valve actuator(s) .

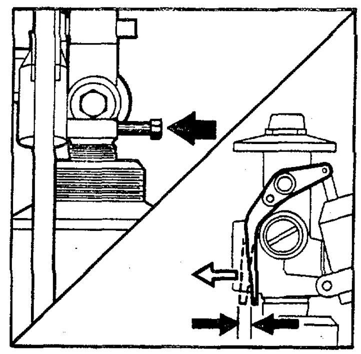
    a. Extend pneumatic valve actuator rod fully and slide actuator arm on cross shaft, engaging pin in hole on Quick-Opening lever.

NOTE: Refer to Appendix A4 for additional details.

b. Insert crescent ring into groove on cross shaft.



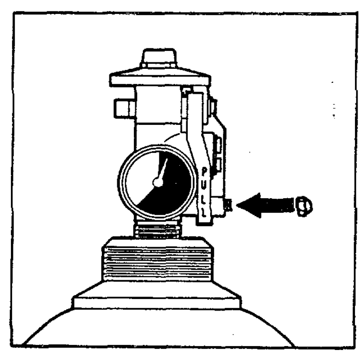
c. Insert anchor stud through valve body and actuator pivot member.



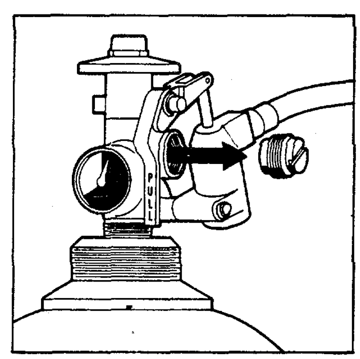
CAUTION: The Quick-Opening lever may be moved slightly forward approximately 1/4 inch (6.4 mm) to permit installation of the anchor stud.

WARNING: FORWARD MOVEMENT IN EXCESS OF 1/4 INCH (6.4 mm) MAY RESULT IN ACTUATION OF THE VALVE.

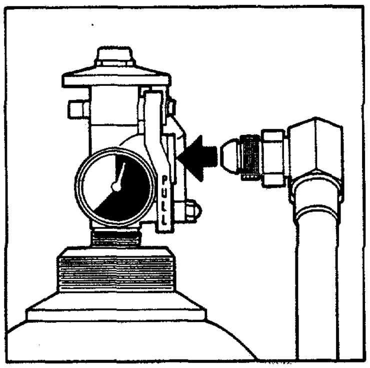
d. Engage and secure cap nut to anchor stud.



16. Remove safety plug from cylinder valve(s) - retain plug(s) for future use.

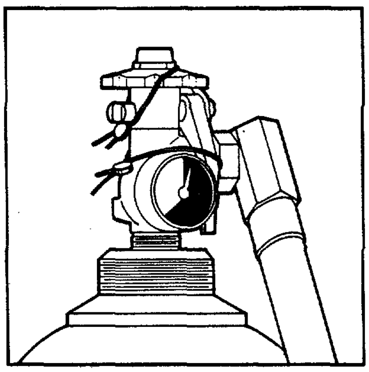


CAUTION: Do not place your body or head in front of cylinder valve outlet. If valve is accidentally operated, velocity of unrestricted escaping gas is forceful enough to cause injury, especially about the face and head.

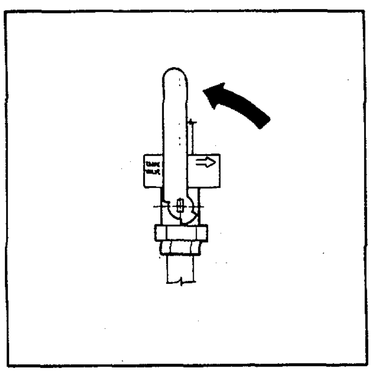


17. Connect high pressure hose to cylinder valve(s), wrench tighten.

CAUTION: Do not strike "Pull" lever when connecting hose to cylinder valve.

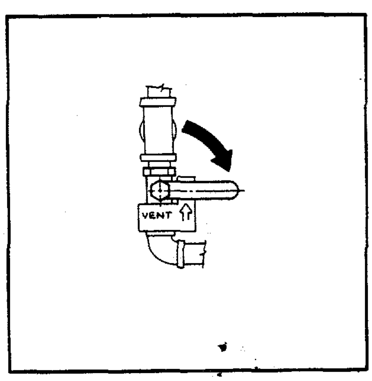


18. Make certain visual inspection seal(s) at cylinder valve(s) are still intact. Replace any broken or missing visual inspection seal(s), Ansul Part No. 15999.



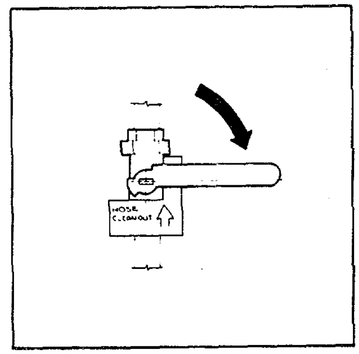
19. Make certain dry chemical tank valve handles are ring pinned and sealed in the operating position .

a. RED Tank Valve OPEN

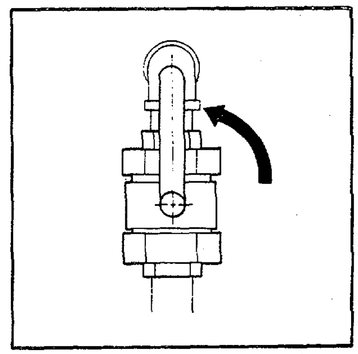


b. GREEN Vent Valve CLOSED

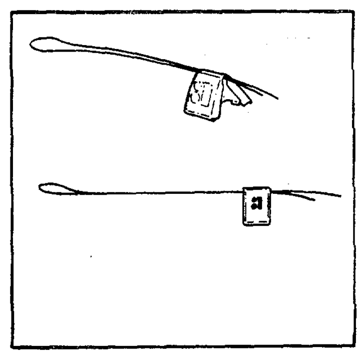
c. BLUE Hose Clean-Out Valve CLOSED



d. BLACK Dry Chemical Valve OPEN

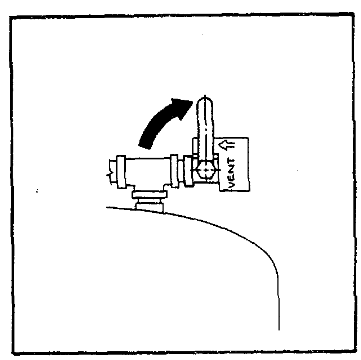


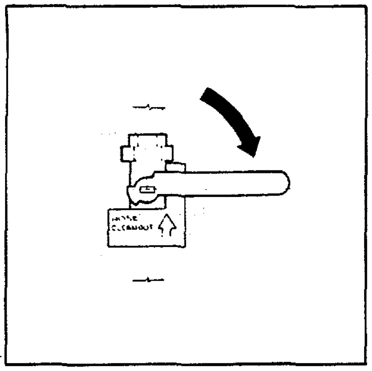
20. Replace any broken or missing visual inspection seal(s), Ansul Part No. 15999.



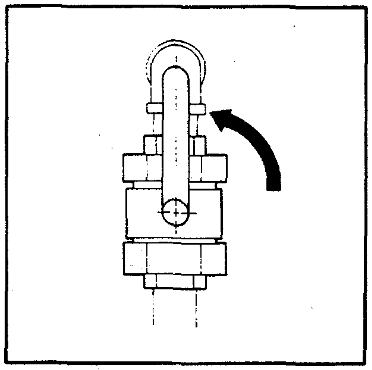
21. Make certain AFFF solution tank valve handles are ring pinned and sealed in the operating position .

a. GREEN Vent Valve CLOSED

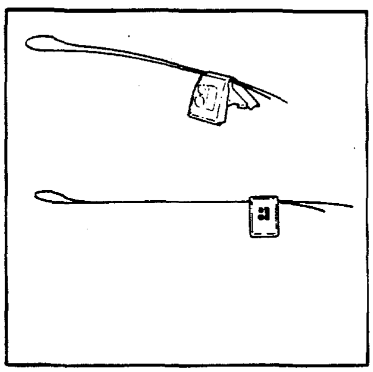




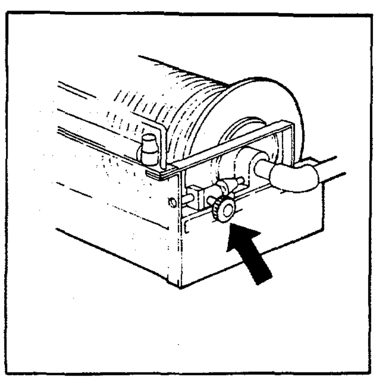
b. BLUE Hose Clean-Out Valve CLOSED



c. BLACK AFFF Valve OPEN

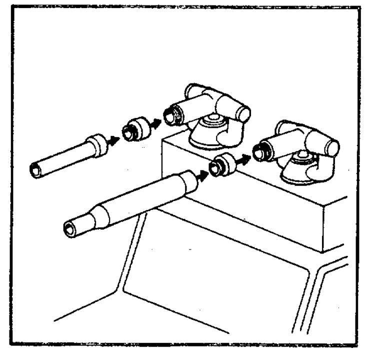


22. Replace any broken or missing visual inspection seal(s), Ansul Part No. 15999.

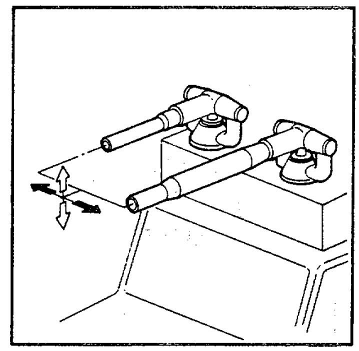


23. Unlock hose reel.

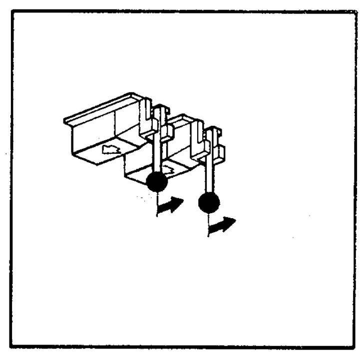
24. Install turret nozzles.



25. Swing turret vertically and horizontally to check freedom of movement.

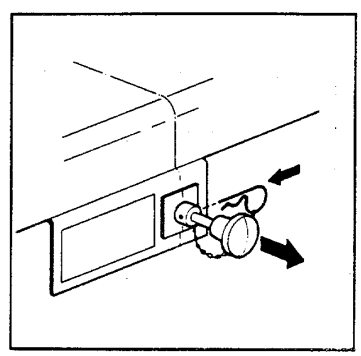


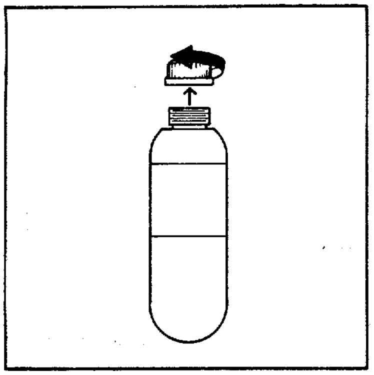
26. Make certain both turret valves operating controls are in the closed position.



27. Install cartridge in dashboard actuator.

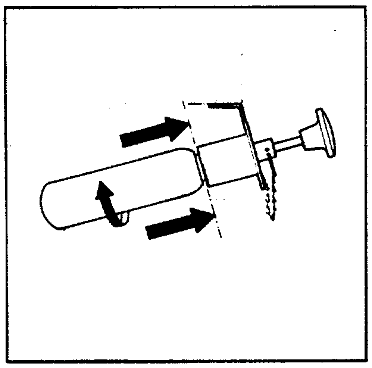
    a. Pull out actuator button and insert ring pin, to assure safe cartridge installation.



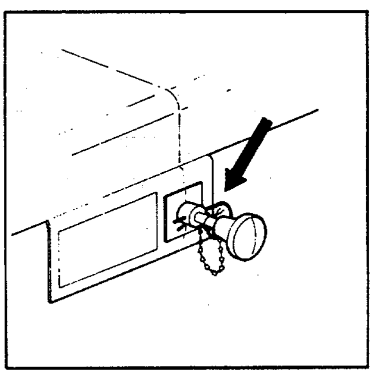


b. Remove safety shipping cap from cartridge. Weigh cartridge. Replace if weight is 1/4 ounce (7.1 g.) or more below weight stamped on cartridge.

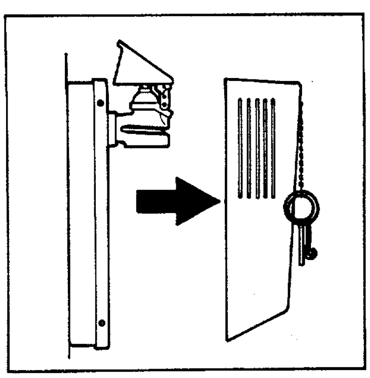
NOTE: Use cartridge, Ansul Part No. 24380, only.



c. Screw cartridge into actuator, hand tighten.



d. Seal the ring pin to actuator stem with visual inspection seal, Ansul Part No. 15999.

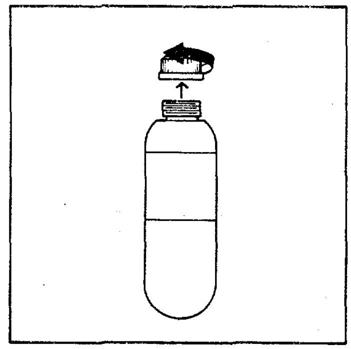


28. Install cartridge in remote actuator.

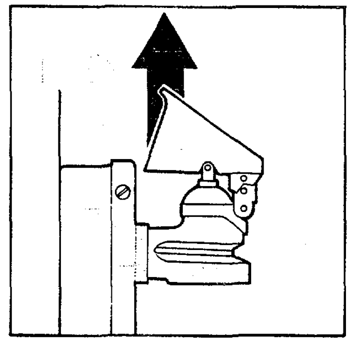
a. Pull ring pin and remove guard.

b. Remove safety shipping cap from cartridge. Weigh cartridge. Replace if weight is 1/4 ounce (7.1 g.) or more below weight stamped on cartridge.

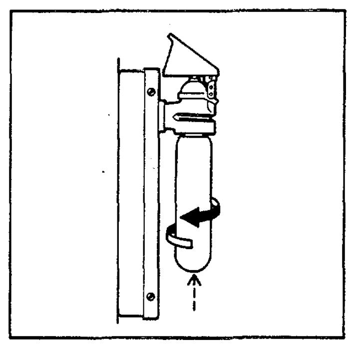
NOTE: Use cartridge, Ansul Part No. 24380, only.



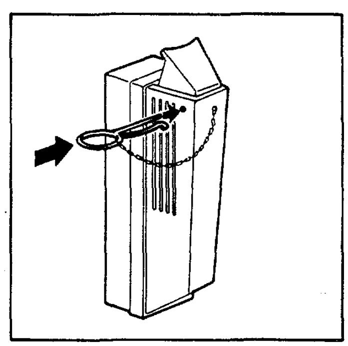
c. Raise puncture lever to assure safe cartridge installation.

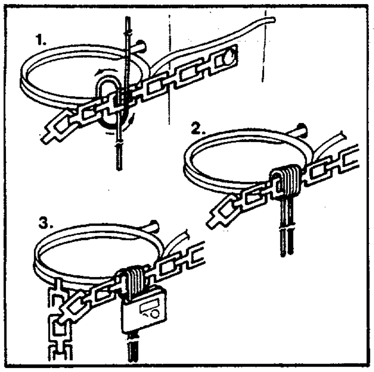


d. Screw cartridge into actuator, hand tighten.

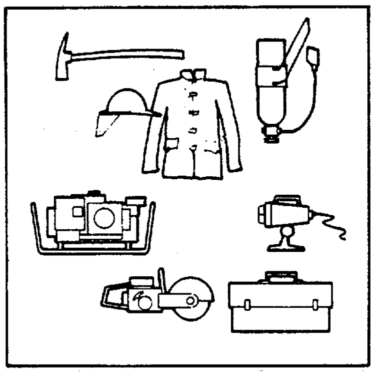


e. Replace cartridge guard and insert ring pin through guard into puncture lever link.

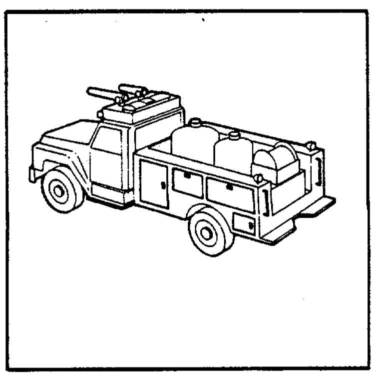




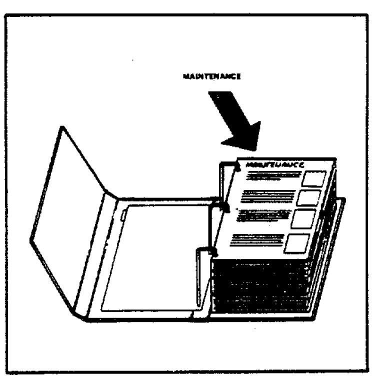
f. Seal with visual inspection seal, Ansul Part No. 15999.



29. Make certain all rescue equipment is properly secured.

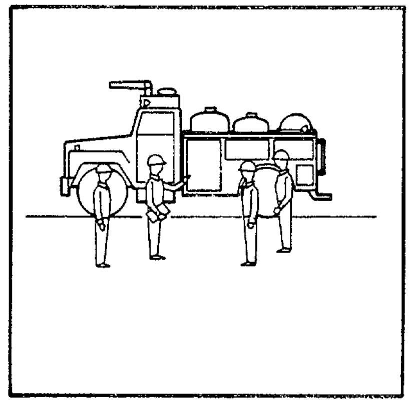


30. Check that all doors are tightly latched.

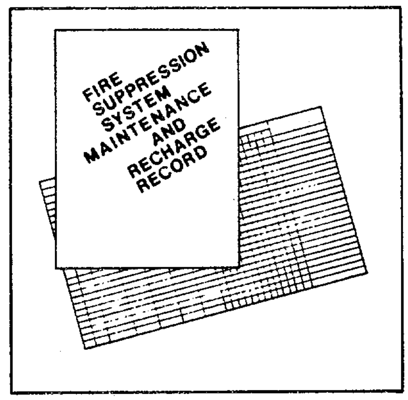


31. To give maximum assurance that the fire suppressing/securing system will operate effectively and safely, a maintenance examination could be effected at this time.

32. Instruct personnel in operation of the fire suppressing/securing system.

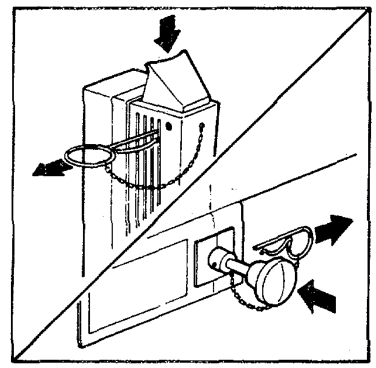


33. Record date of placement in service.



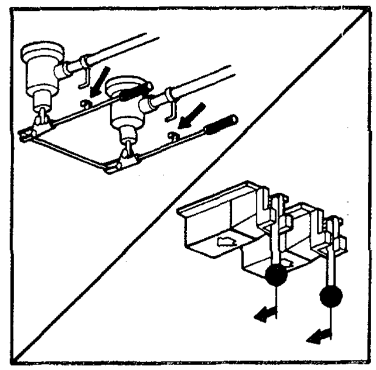
To operate the fire suppressing/securing system:

1. Pull ring pin, push red button on dashboard actuator or lever on actuator in the rear of the vehicle.

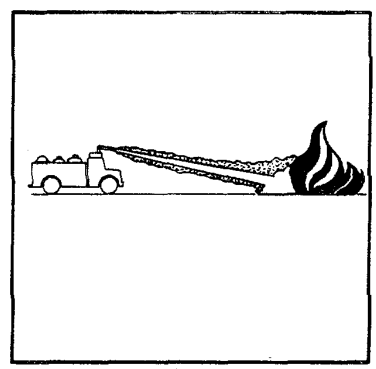


2. For turret operation:

   a. Unlock control handles and open hand valve lever(s) to operate turret(s).

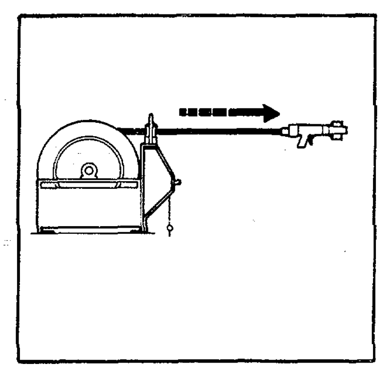


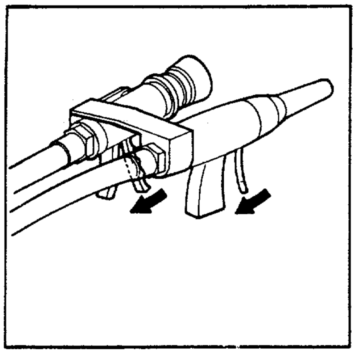
   b. For FLAMMABLE LIQUID SPILL FIRE, direct turret stream(s) at base of flames with side to side motion.



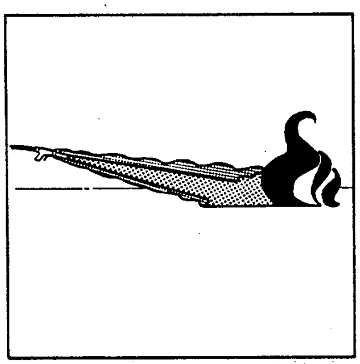
3. For operation of hand line:

   a. Pull out ring pin on nozzle assembly holder and pull all hose from reel.

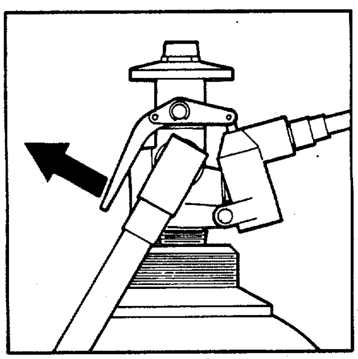




b. Open nozzle(s) fully. (Pull trigger.)



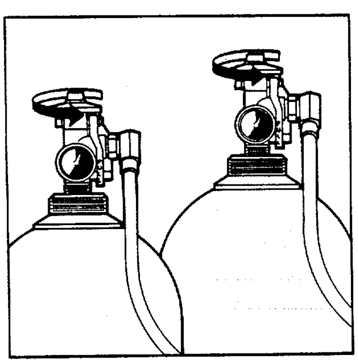
c. For FLAMMABLE LIQUID SPILL FIRE, direct stream(s) at base of flames with side to side motion.



4. IMPORTANT:

If the systems cannot be actuated by use of the cartridge operated actuator(s):

a. Pull the Quick-Opening operating levers on all cylinders.



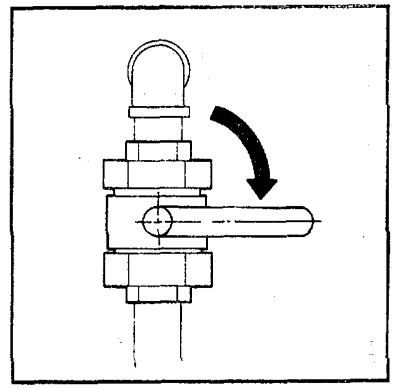
OR

b. Turn handwheels on all nitrogen cylinders counterclockwise to full OPEN position.

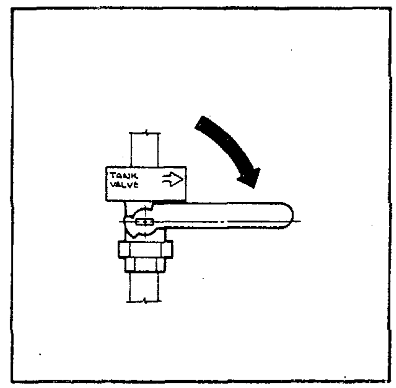
To prepare the fire suppressing/securing system for service after use. (For continued protection, the system must be recharged immediately after use.)

DRY CHEMICAL TANK

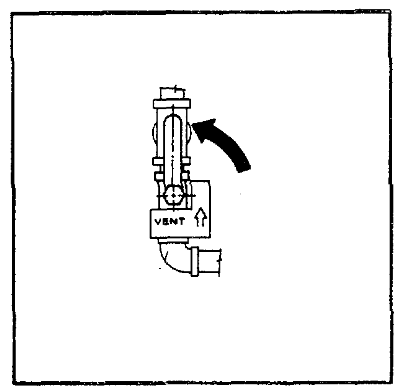
1. Pull ring pin and close BLACK Dry Chemical Valve.



2. Pull ring pin and close RED Tank Valve.

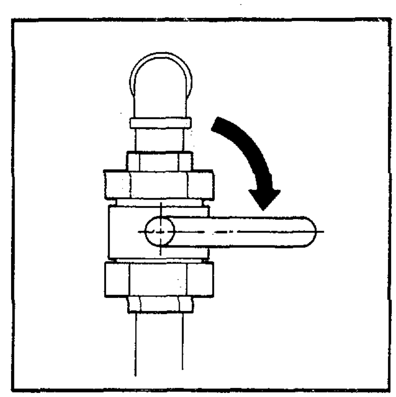


3. Pull ring pin and open GREEN Vent Valve.

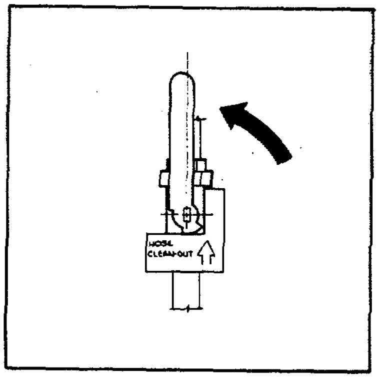


AFFF SOLUTION TANK

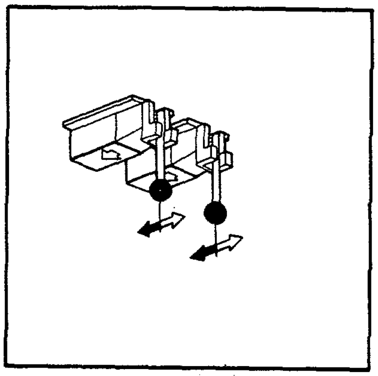
4. Pull ring pin and close BLACK AFFF valve.



RECHARGE INSTRUCTIONS

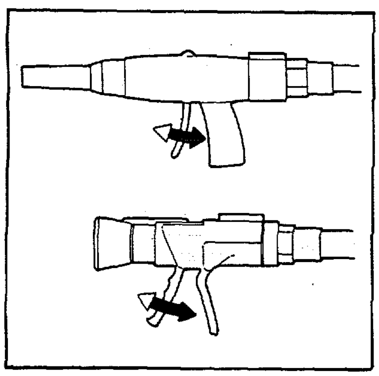


5. Pull ring pin and open BLUE Hose Clean-Out Valve.



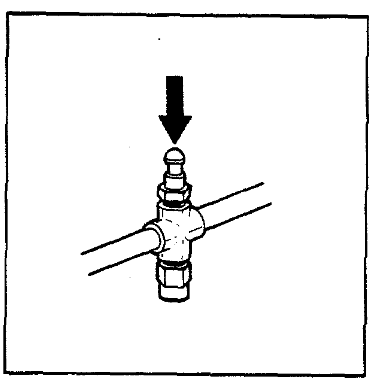
6. Open dry chemical and AFFF turret nozzles individually until streams are clear, then close.

   NOTE: Do not relieve all pressure through turret.



7. Open dry chemical handline nozzle to clear hose line and to relieve all pressure from dry chemical tank. Open AFFF handline nozzle until stream is clear, then close.

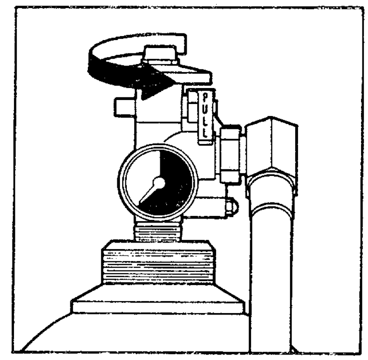
   NOTE: Make sure all hose is off hose reel.



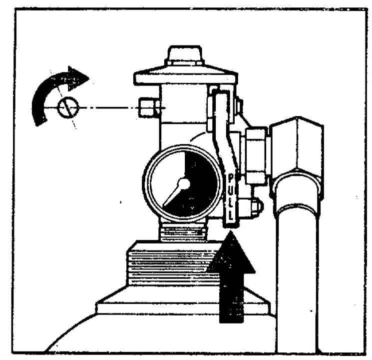
8. Close cylinder valves.

   a. Push GREEN Pressure Relief Valve Button to relieve pressure in cylinder actuation manifold.

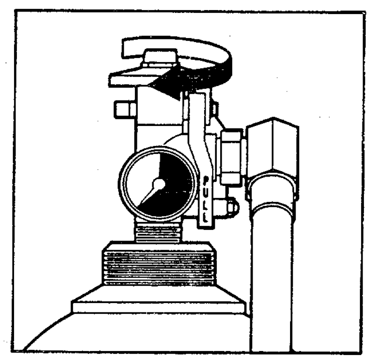
b. Turn handwheel on cylinder counterclockwise to full OPEN position.



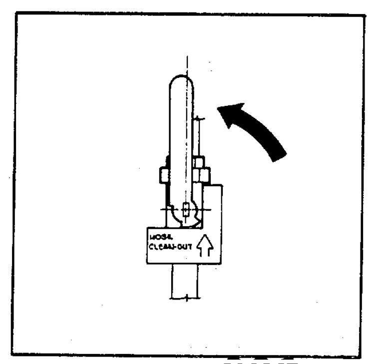
c. Push Quick-Opening lever toward valve body, while rotating cross shaft flat clockwise (when facing cross shaft from the end with flat) to STOP position.



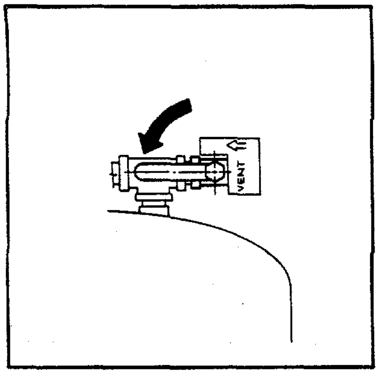
d. Close valve by turning handwheel on cylinder clockwise, hand tighten.



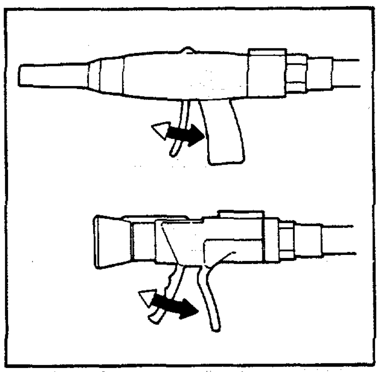
9. Pull ring pin and open BLUE hose clean-out valve on dry chemical tank piping.



RECHARGE INSTRUCTIONS

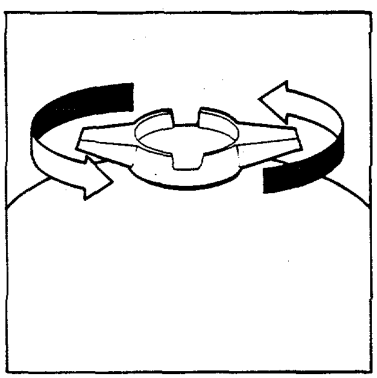


10. Pull ring pin and open GREEN Vent Valve on AFFF tank piping to relieve all remaining pressure.

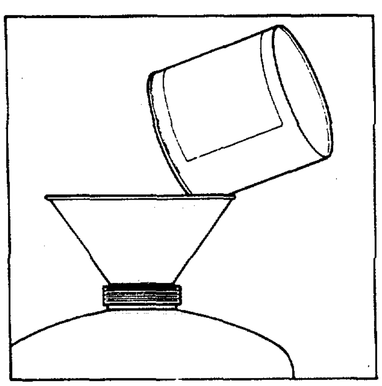


11. Open dry chemical and AFFF handline nozzle(s) individually to relieve all remaining pressure.

NOTE: DO NOT ATTEMPT TO RELIEVE PRESSURE THROUGH TURRETS.

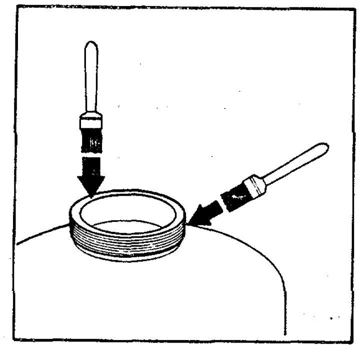


12. Remove fill cap from dry chemical tank and place funnel in opening.

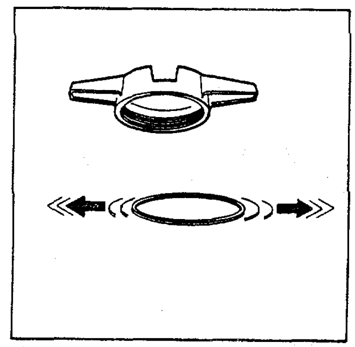


13. Fill tank to rated capacity with Ansul dry chemical specified on nameplate(s) only.

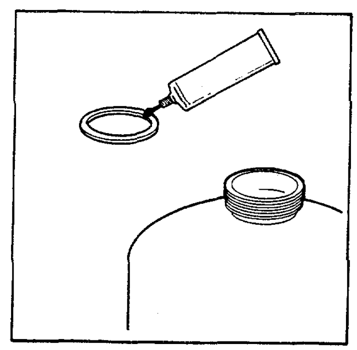
4. Clean fill opening threads and gasket seating surface.



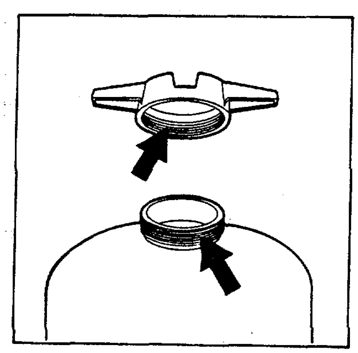
15. Examine fill cap gasket for elasticity or cuts.



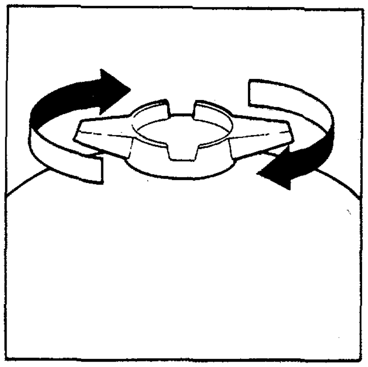
16. Clean and coat gasket lightly with a good grade of high heat resistant grease.



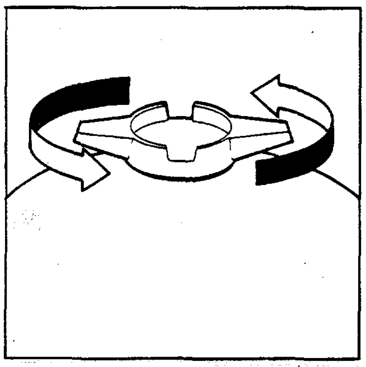
17. Inspect threads in fill cap and on fill opening for nicks, burrs, cross-threading, rough or feathered edges -clean and coat fill cap threads lightly with a good grade of high heat resistant grease.



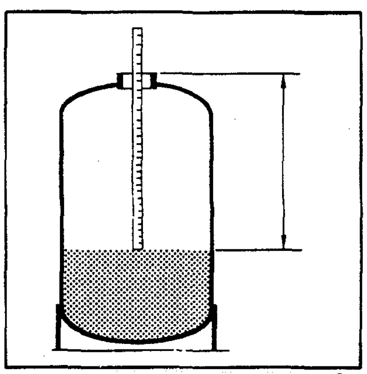
RECHARGE INSTRUCTIONS



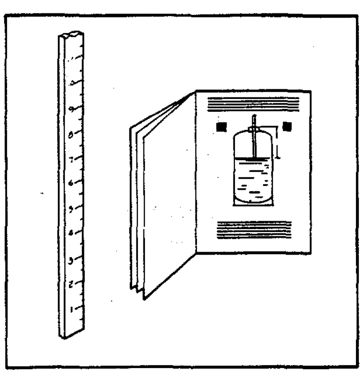
18. Secure fill cap, hand tighten.



19. Remove fill cap from Ansul AFFF solution tank.

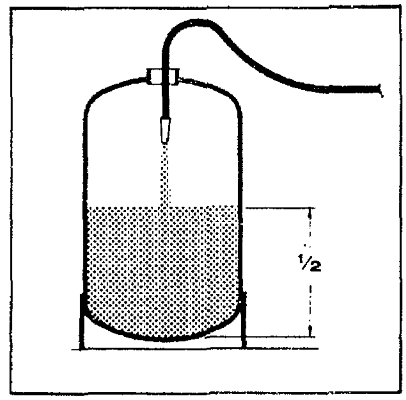


20. Insert depth measuring rod into tank, pushing it gently against bottom center to open intake valve.



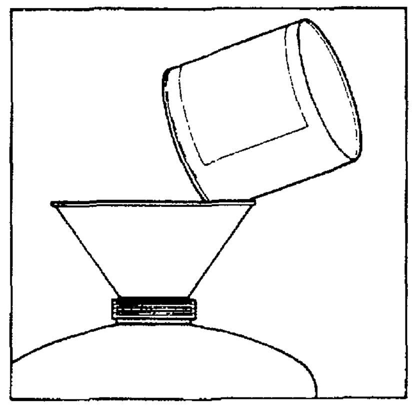
21. Determine AFFF solution depth and refer to Nameplate or Recharge Guide in Appendix A5.

22. Raise level with fresh tap water to about one-half the free space.

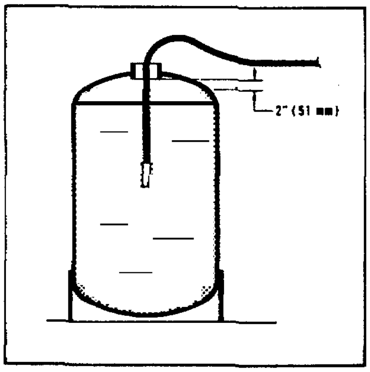


NOTE: Ansul recommends that the quality of the tap water be examined each time the system is charged as described on Page 1 of the Field Inspection Manual, Ansul Part No. 31274, in the back of this manual. The quality of water should be noted on the Field Inspection Record, Form No. F-7880 (Appendix A2).

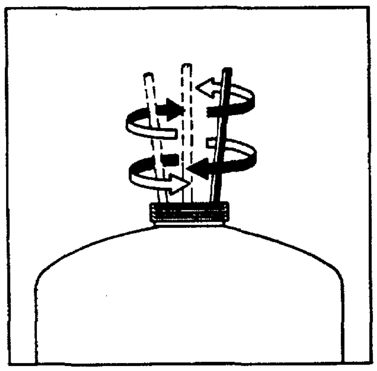
23. Place funnel in fill opening and pour measured amount of ANSULITE AFFF (Aqueous Film-Forming Foam) 6% Concentrate only, determined from Recharge Guide in Appendix A5.



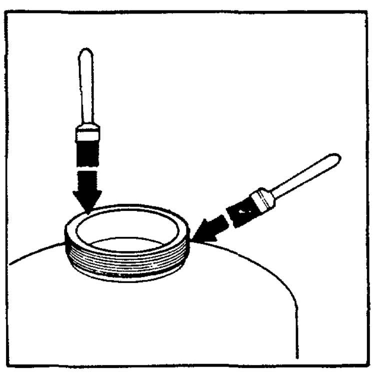
NOTE: Prior to adding the concentrate to the tank, its refractive index should be measured and recorded on the Field Inspection Record, Form No. F-7880, along with a refractive index vs. concentrate curve. The procedures for these operations are covered on Page 1 of the Field Inspection Manual, Part No. 31274, at the back of this manual. It is also a good idea to record the batch number(s) from the Ansul AFFF pails on the Field Inspection Record, Form No. F-7880, for future use. If only a portion of the solution is being added, the quality of water should be checked, the refractive index should be measured and recorded and the batch number should be recorded.



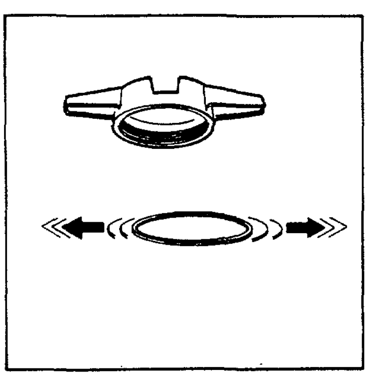
24. Submerge hose and fill remainder of tank with water to within 2 inches (51 mm) from the bottom of the fill opening, reducing rate of water flow as tank becomes full.



25 Stir solution for 30 seconds - use a non-metallic rod.

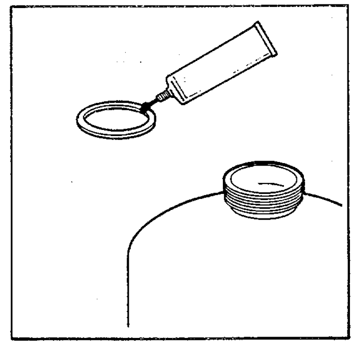


26. Clean fill opening threads and gasket seating surface.

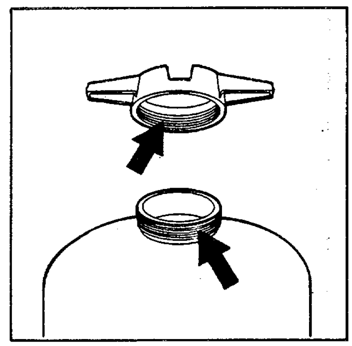


27. Examine fill cap gasket for elasticity, cuts or cracking.

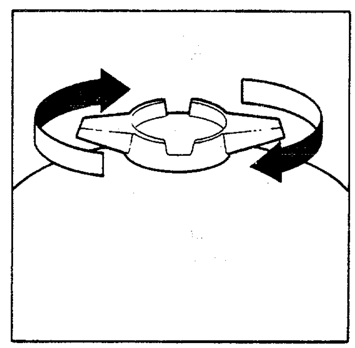
28. Clean and coat gasket lightly with a good grade of high heat resistant grease.



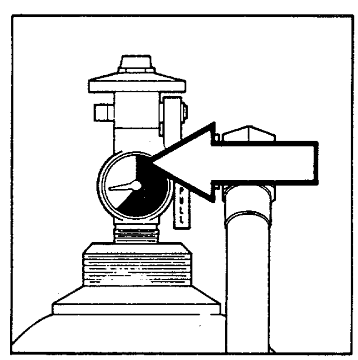
29. Inspect threads in fill cap and on fill opening for nicks, burrs, cross-threading, rough or feathered edges - clean and coat fill cap threads lightly with a good grade of high heat resistant grease.



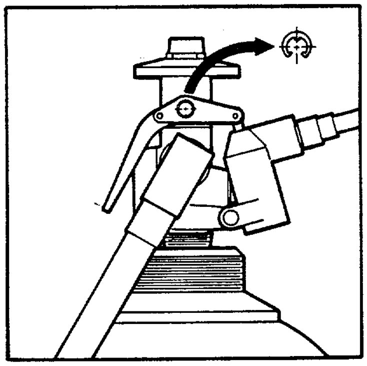
30. Secure fill cap, hand tighten.



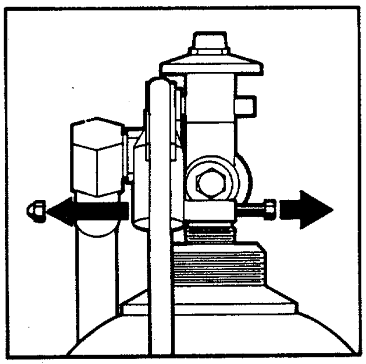
31. Read cylinder gauge(s). Note pressure, check ambient temperature and refer to Temperature Correction Chart in Appendix A3. Replace cylinder(s) if below minimum pressure.



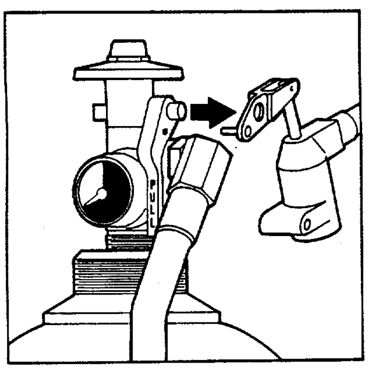
32. To replace nitrogen cylinder(s) ...



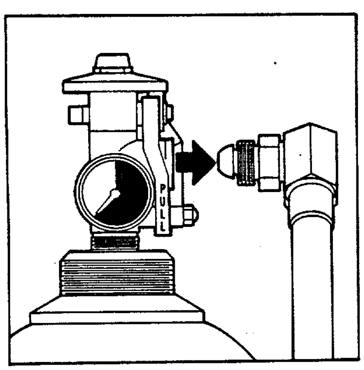
a. Remove crescent ring from cross shaft.



b. Remove cap nut and anchor stud.



c. Slide actuator arm off cross shaft.

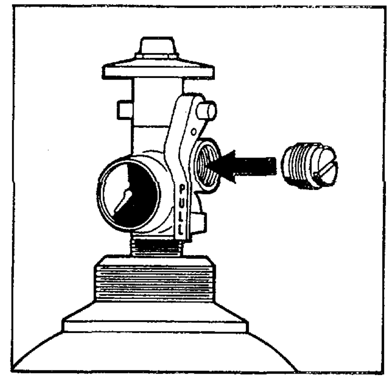


d. Remove high pressure hose from cylinder valve.

CAUTION: Do not place your body or head in front of cylinder valve outlet. If valve is accidentally operated, velocity of unrestricted escaping gas is forceful enough to cause injury, especially about the face and head.

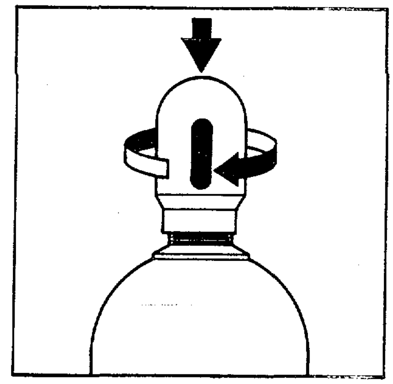
e. Thread safety plug fully into cylinder valve outlet.

CAUTION: Use of plug is vital to your safety. If valve is accidentally operated, velocity of unrestricted escaping gas is forceful enough to cause injury, especially about the face and head.

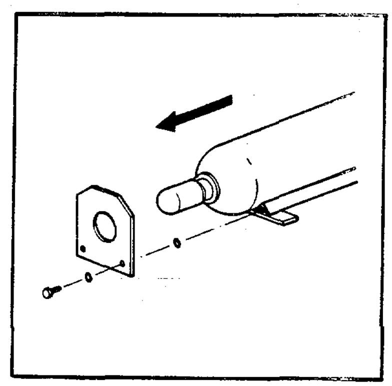


f. Secure cylinder shipping cap.

NOTE: Safety shipping cap must always be in place when removing or installing cylinder.

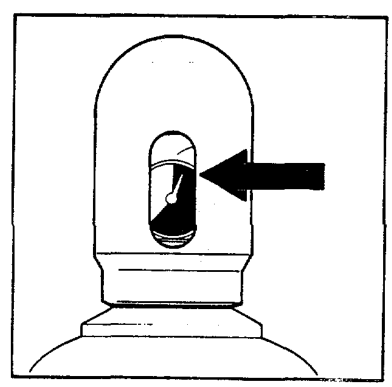


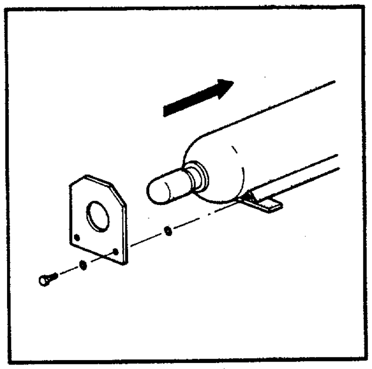
g. Remove cylinder retaining. bracket and slide cylinder out.



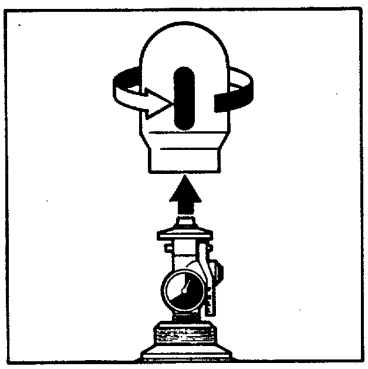
33. Install fully charged cylinder(s).

NOTE: Read cylinder gauge before installation -pointer should be in BLACK operating range.



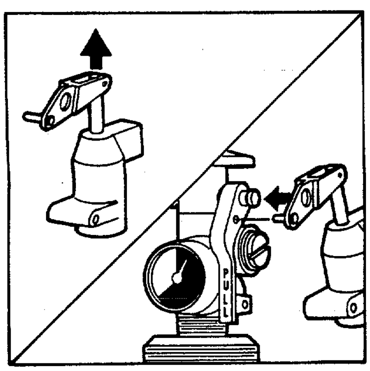


34. Secure cylinder retaining bracket(s).



35. Remove safety shipping cap(s) from cylinder(s). Retain cap(s) for future use.

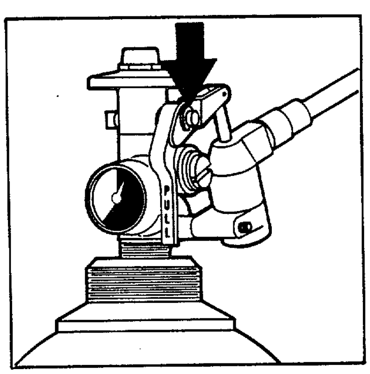
WARNING: MAKE CERTAIN SAFETY PLUG IS IN-PLACE IN CYLINDER VALVE OUTLET BEFORE COMPLETING THE FOLLOWING STEPS.



36. Install pneumatic valve actuator(s) ...

    a. Extend pneumatic valve actuator rod fully and slide actuator arm on cross shaft, engaging pin in hole on Quick-Opening lever.

    NOTE: Refer to Appendix A4 for additional details.

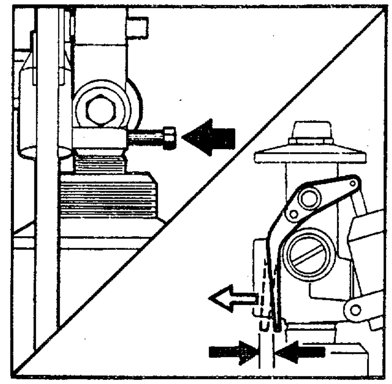


    b. Insert crescent ring into groove on cross shaft.

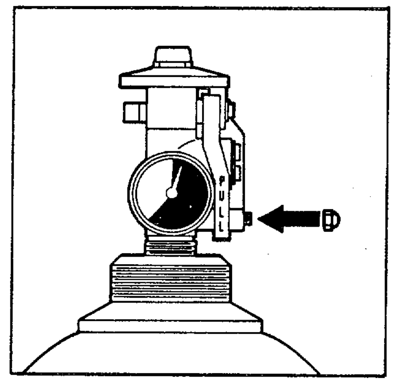
c. Insert anchor stud through valve body and actuator pivot member.

CAUTION: The Quick-Opening lever may be moved slightly forward approximately 1/4 inch (6. 4 mm) to permit installation of the anchor stud.

FORWARD MOVEMENT IN EXCESS OF 1/4 INCH (6. 4 mm) MAY RESULT IN ACTUATION OF THE VALVE.

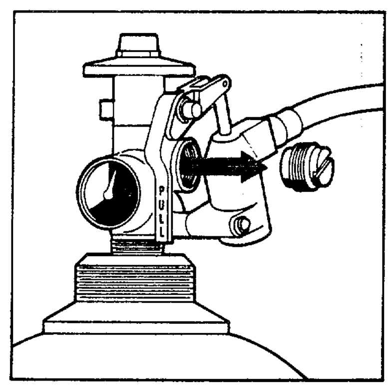


d. Engage and secure cap nut to anchor stud.



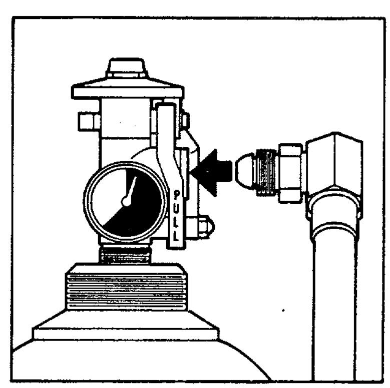
37. Remove safety plug from cylinder valve(s) -retain plug(s) for future use.

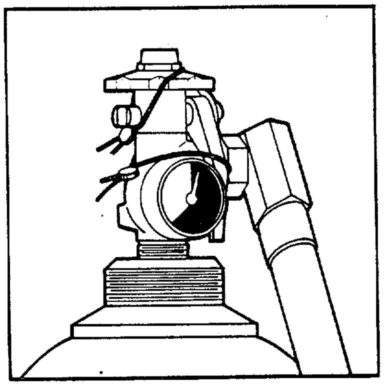
CAUTION: Do not place your body or head in front of cylinder valve outlet. If valve is accidentally operated, velocity of unrestricted escaping gas is forceful enough to cause injury, especially about the face and head.



38. Connect high pressure hose to cylinder valve(s) wrench tighten.

CAUTION: Do not strike "Pull" lever when connecting hose to cylinder valve.

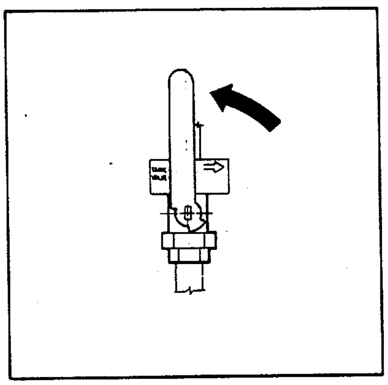




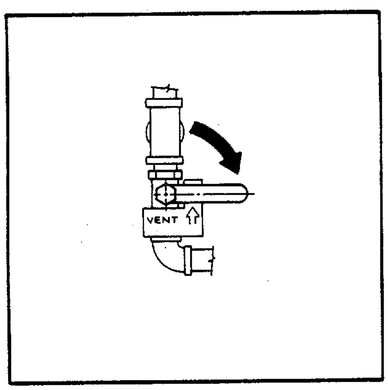
39. Make certain visual inspection seal(s) at cylinder valve(s) are still intact. Replace any broken or missing visual inspection seal(s), Ansul Part No. 197.

40. Return dry chemical tank valve handles to operating position

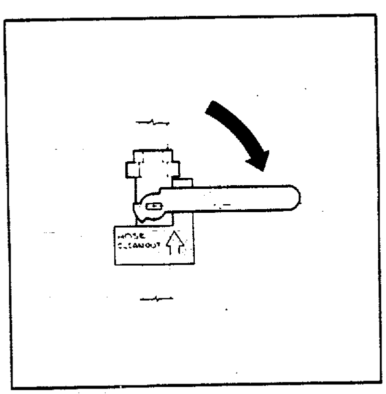
    a. RED Tank Valve OPEN



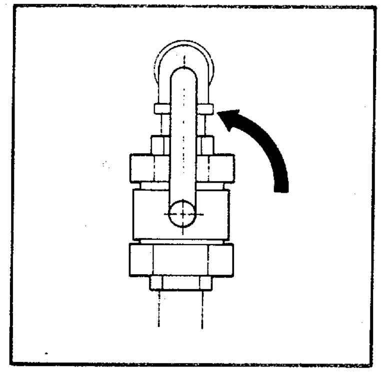
    b. GREEN Vent Valve CLOSED



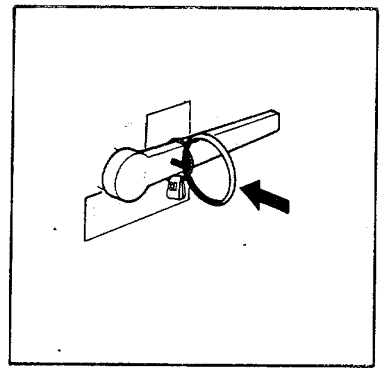
    c. BLUE Hose Clean-Out Valve CLOSED



d. BLACK Dry Chemical Valve OPEN

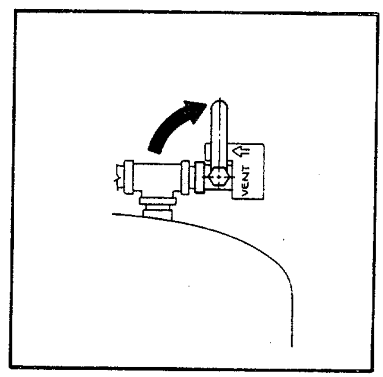


41. Insert ring pin(s) through valve handle(s) into bracket(s) and seal with visual inspection seal(s), An seal Part No. 15999.

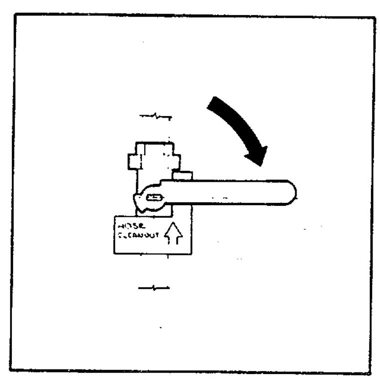


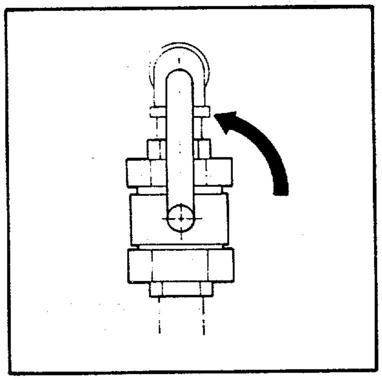
42. Return Ansul AFFF solution tank valve handles to operating position ...

a. GREEN Vent Valve CLOSED

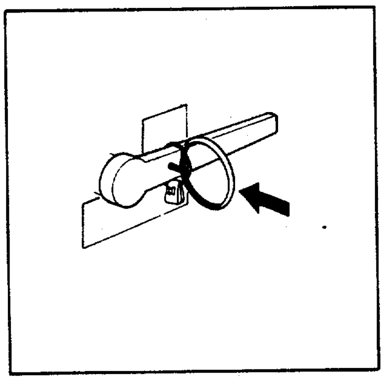


b. BLUE Hose Clean-Out Valve CLOSED

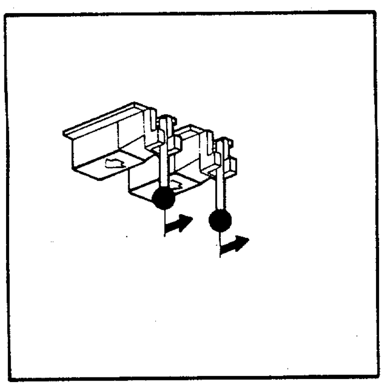




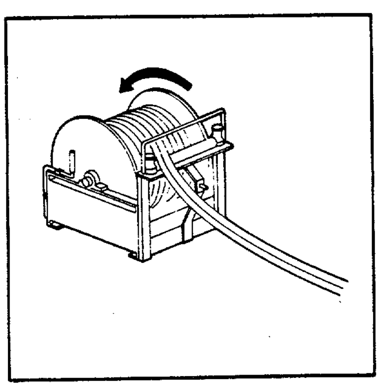
c. BLACK AFFF Valve OPEN



43. Insert ring pin(s) through valve handle(s) into bracket(s) and seal with visual inspection seal(s), Ansul Part No. 15999.



44. Make certain both turret valve operating controls are in the closed position.

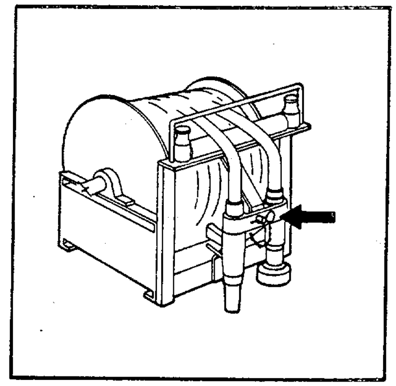


45. Rewind hose on reel.

NOTE: Do not lock hose reel.

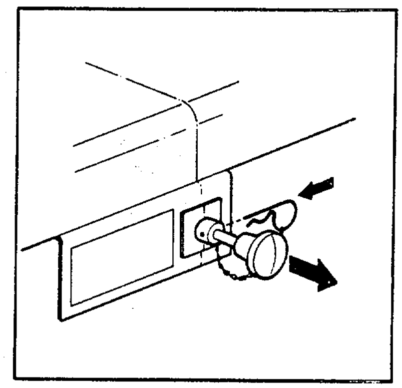
46. Secure nozzle assembly on holder and insert ring pin.

NOTE: Make certain nozzle trigger(s) are forward in the CLOSED position.

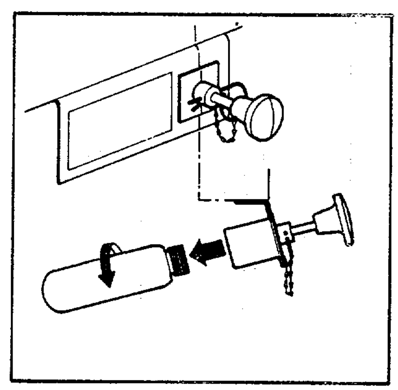


47. Replace cartridge in dashboard actuator... if used.

a. Pull out dashboard actuator button and insert ring pin to assure safe cartridge installation.

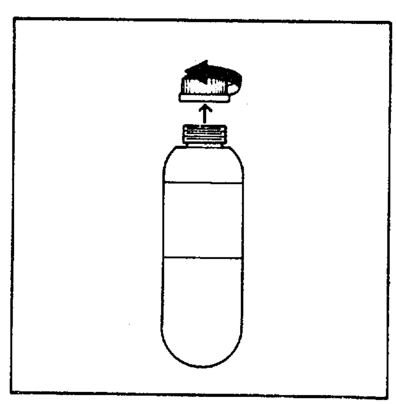


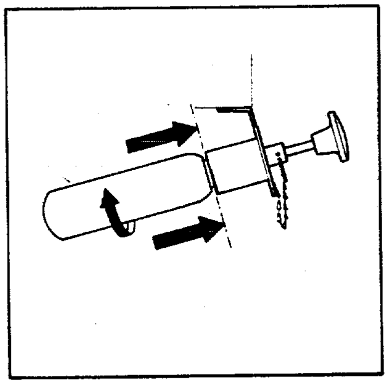
b. Remove spent cartridge.



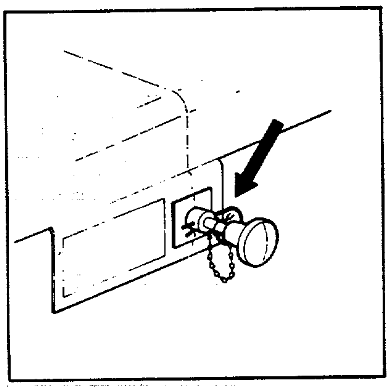
c. Remove safety shipping cap from replacement cartridge. Weigh cartridge. Replace if weight is 1/4 ounce (7.1 g.) or more below weight stamped on cartridge.

NOTE: Use cartridge, Ansul Part No. 24380 only. Order cartridge shipping assembly, Ansul Part No. 7013, to assure receiving correct replacement cartridge.

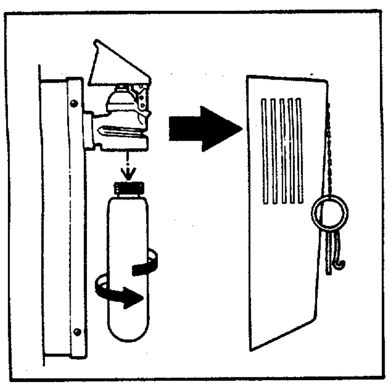




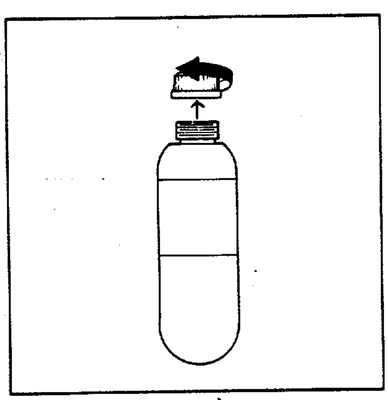
d. Screw cartridge into actuator, hand tighten.



e. Seal ring pin to actuator stem with visual inspection seal, Ansul Part No. 15999.



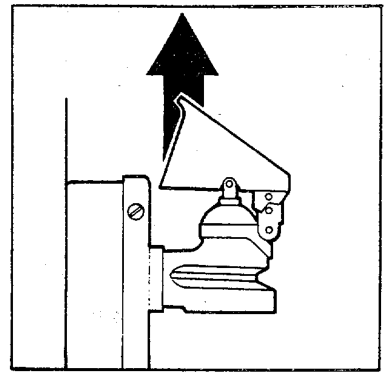
48. Replace cartridge in remote actuator ... if used.
    a. Remove guard and spent cartridge.



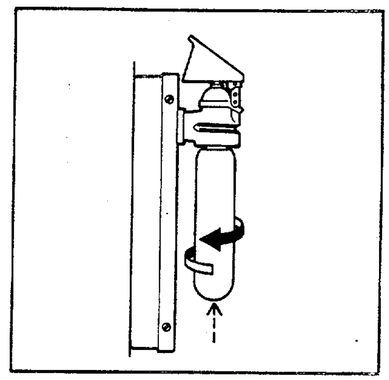
b. Remove safety shipping cap from replacement cartridge. Weigh cartridge. Replace if weight is 1/4 ounce (7.1g) or more below weight stamped on cartridge.

NOTE: Use cartridge, Ansul Part No. 24380, only. Order cartridge shipping assembly, Ansul Part No. 7013, to assure receiving correct replacement cartridge.

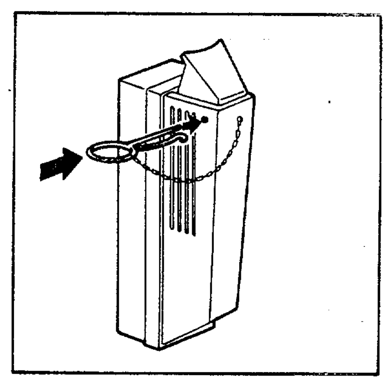
c. Raise puncture lever to assure safe cartridge installation.



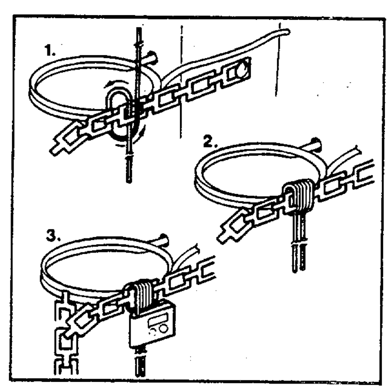
d. Screw cartridge into actuator, hand tighten.

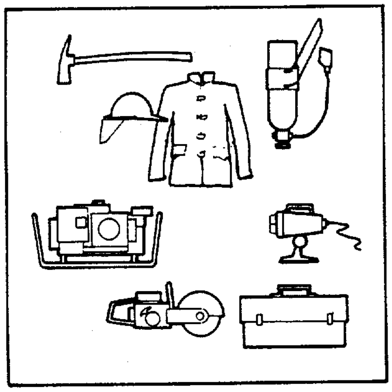


e. Replace cartridge guard and insert ring pin through guard into puncture lever link.

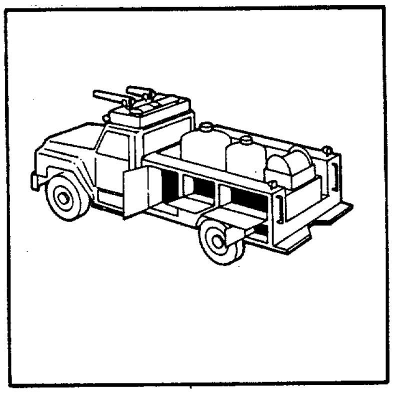


f. Seal with visual inspection seal, Ansul Part No. 15999.

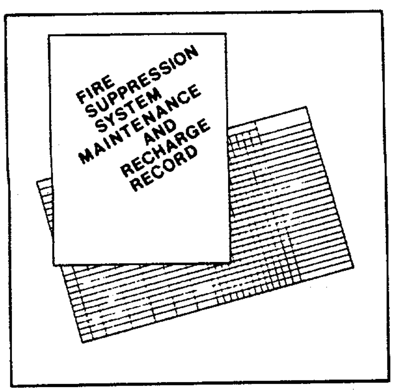




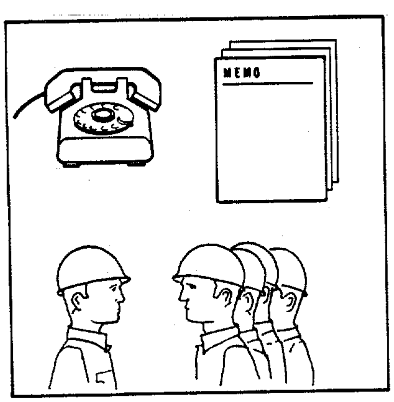
49. Return all rescue equipment and properly secure.



50. Make certain all doors are tightly latched.



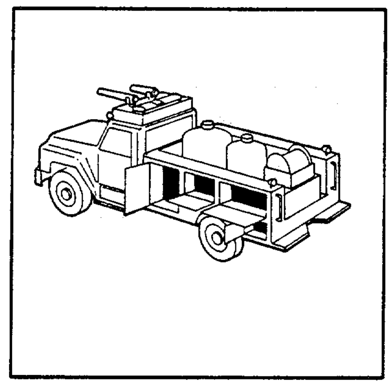
51. Record date of recharge.



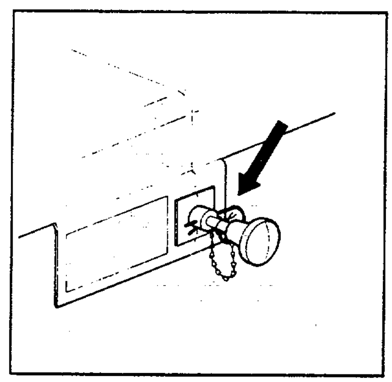
52. Notify operating personnel that the fire suppressing/securing system is back in service.

To provide reasonable assurance that the fire suppressing/securing system is fully charged and operable. The inspection frequency will vary from hourly to weekly, but shall not exceed one month, based on the needs of the situation. Inspections should always be conducted at regular intervals.

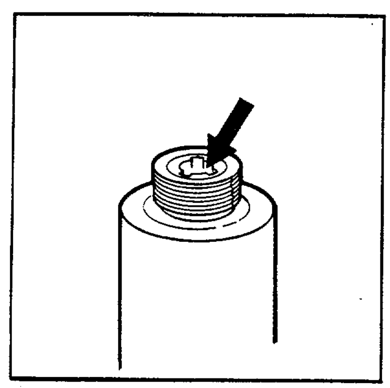
1. Check general appearance of the fire suppressing/securing system and components for mechanical damage or corrosion. Check actuation and agent hose lines for wear, especially at points where it passes through bulkheads. (Consult your truck owner's manual for chassis inspection.)

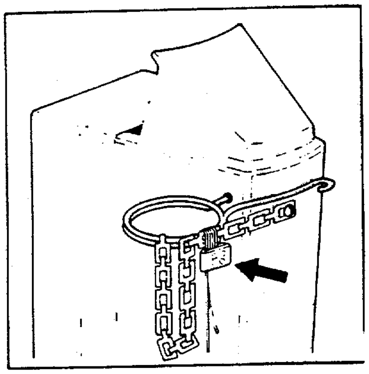


2. Make certain dashboard actuator ring pin is properly inserted and visual inspection seal is intact.

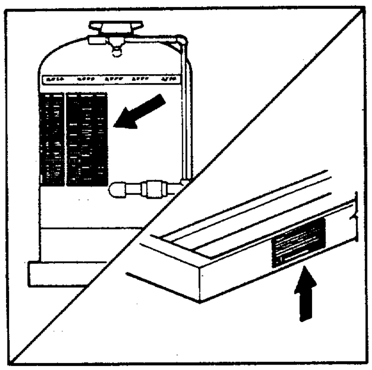


3. Remove cartridge from dashboard actuator and examine disc seal should be unruptured. Return cartridge to actuator, hand tighten.

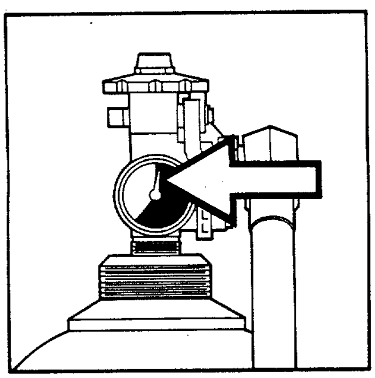




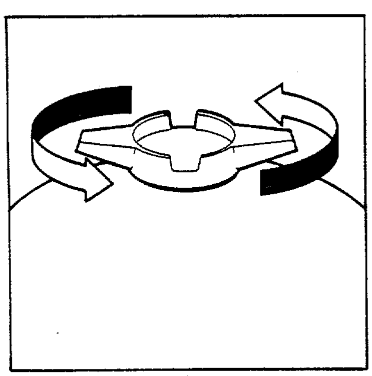
4. Check that remote actuator ring pin is properly inserted and that visual inspection seal is intact..



5. Check nameplates for readability.

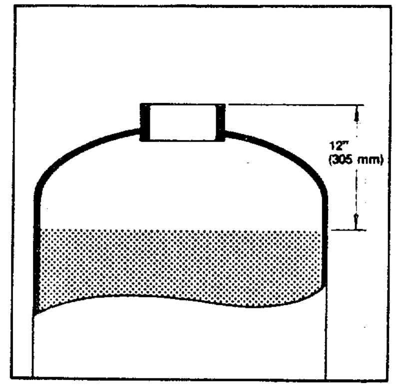


6. Read cylinder gauge(s) -pointer should be in BLACK operating range and visual inspection seal(s) on valve(s) should be intact.

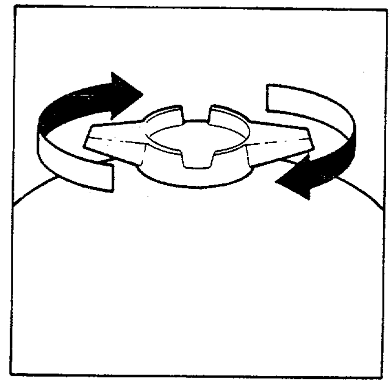


7. Remove fill cap from dry chemical tank.

8. Make certain tank is filled with free-flowing Ansul dry chemical to a level of not more than 12 inches (305 mm) from bottom of fill opening.

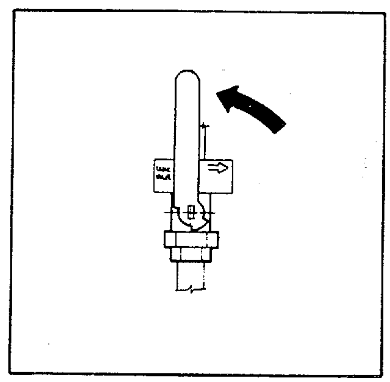


9. Secure fill cap, hand tighten.

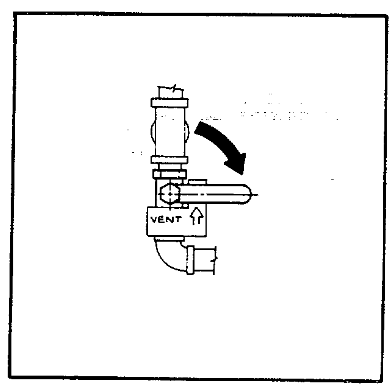


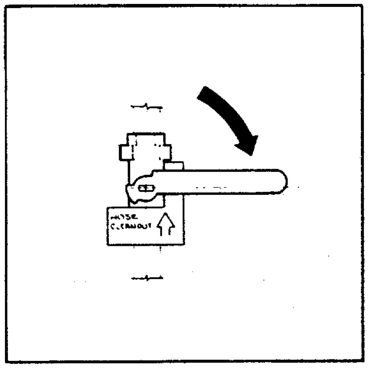
10. Make certain dry chemical tank valve handles are ring pinned and sealed in the operating position.

    a. RED Tank Valve OPEN

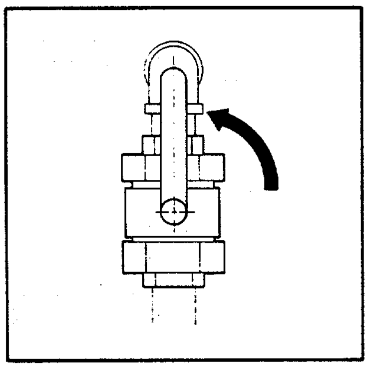


    b. GREEN Vent Valve CLOSED

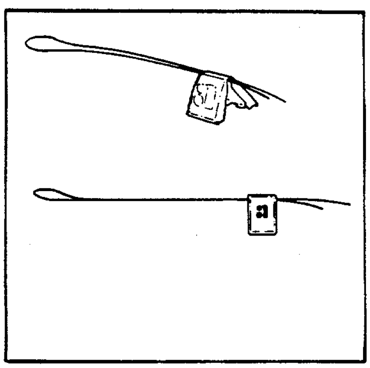




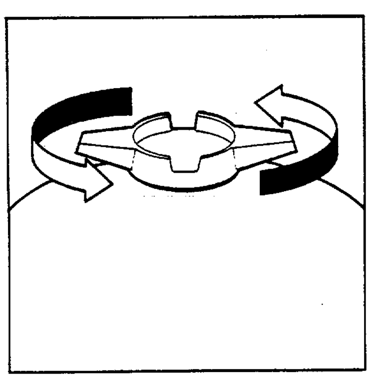
c. BLUE Hose Clean-Out Valve CLOSED



d. BLACK Dry Chemical Valve OPEN

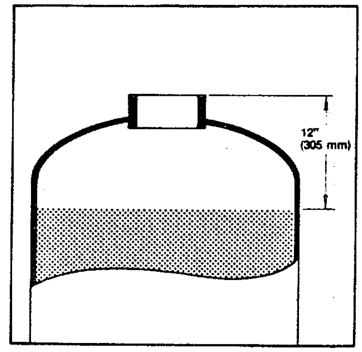


11. Replace any broken or missing visual inspection seal(s), Ansul Part No. 15999.

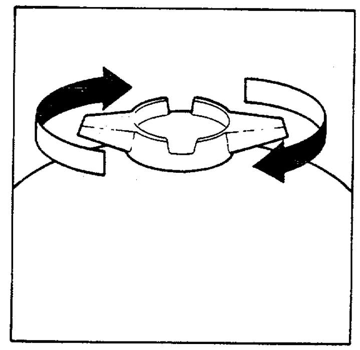


12. Remove fill cap from AFFF solution tank.

13. Make certain AFFF solution level is about 2 inches (51 mm) from bottom of the fill opening.

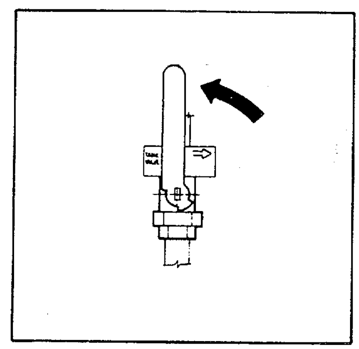


14. Secure fill cap, hand tighten.

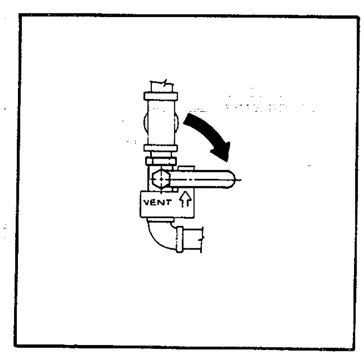


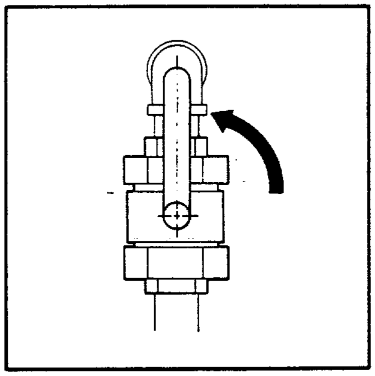
15. Make certain AFFF solution tank valve handles are ring pinned and sealed in the operating position ...

a. GREEN Vent Valve CLOSED

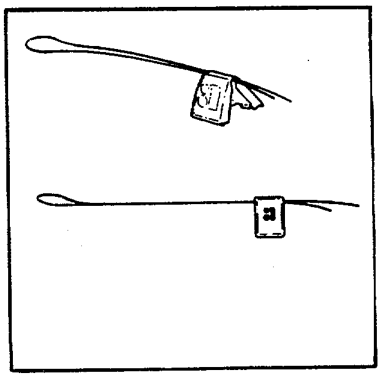


b. BLUE Hose Clean-Out Valve CLOSED

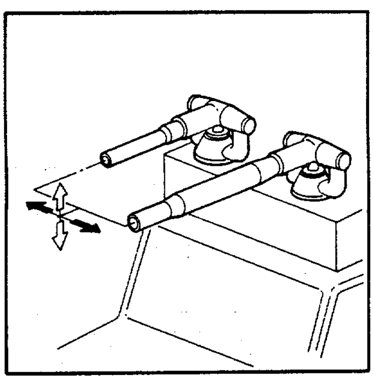




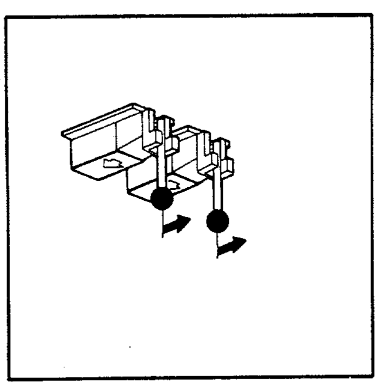
c. BLACK AFFF Valve OPEN



16. Replace any broken or missing visual inspection seal(s), Ansul Part No. 15999.

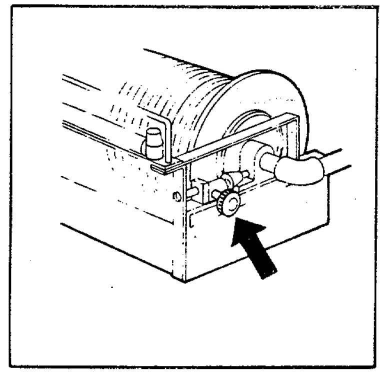


17. Swing turrets horizontally and vertically to check for free movement.

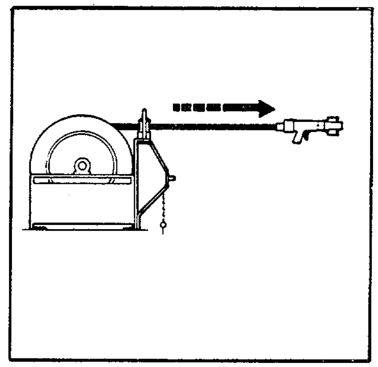


18. Make certain both turret valve operating controls are in the closed position.

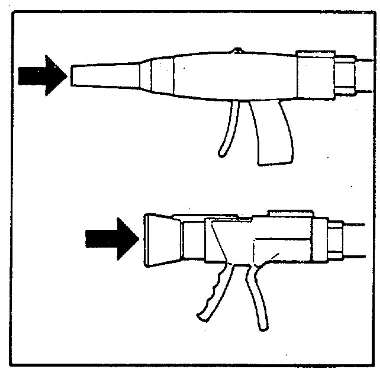
19. Make certain hose reel is unlocked.



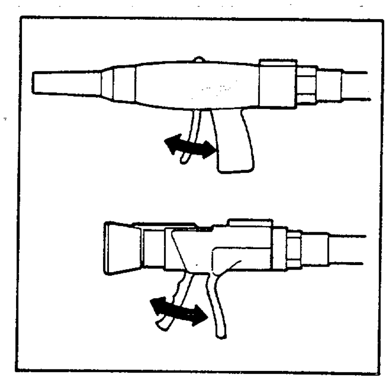
20. Pull ring pin on nozzle assembly holder and pull out several feet of hose to check for free movement.

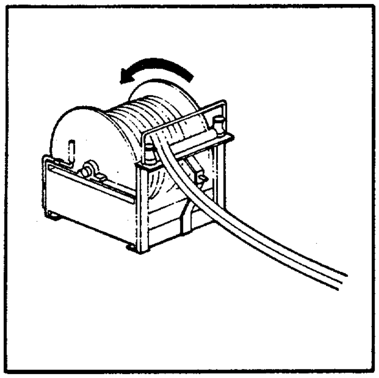


21. Examine nozzle openings for obstruction.



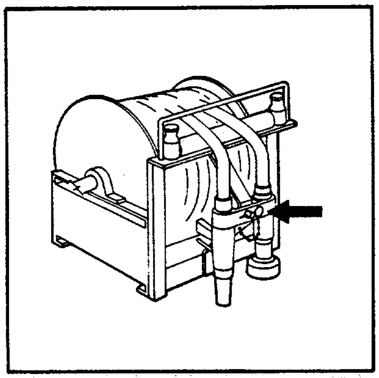
22. Squeeze nozzle triggers to check for free-movement.





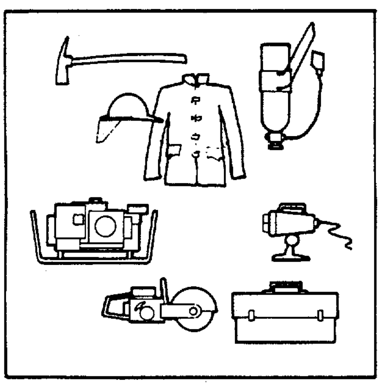
23. Rewind hose on reel.

    NOTE: Do not lock hose reel.

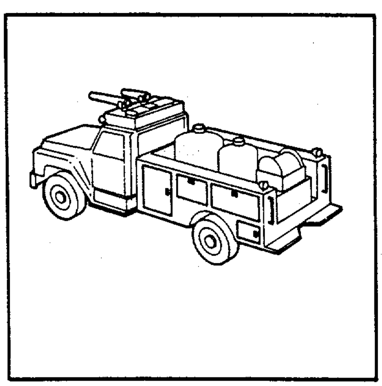


24. Secure nozzle assembly on holder and insert ring pin.

    NOTE: Make certain nozzle triggers are forward in the CLOSED position.

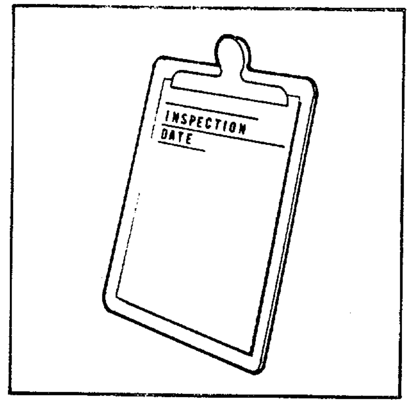


25. Make certain all rescue equipment is properly secured.



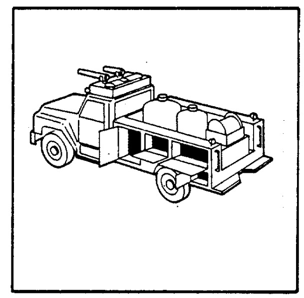
26. Check that all doors are tightly latched.

27. Record date of inspection check, if required.

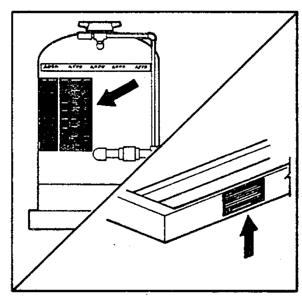


To provide maximum assurance that your Ansul fire suppressing/securing system will operate effectively and safely, fire suppressing/securing systems must be maintained at six-month intervals, or when specifically indicated by an inspection.

1. Check general appearance of the fire suppressing/securing system and components for mechanical damage or corrosion. Check actuation and agent hose lines for wear, especially at points where it passes through bulkheads. Consult your truck owner's manual for chassis inspection.

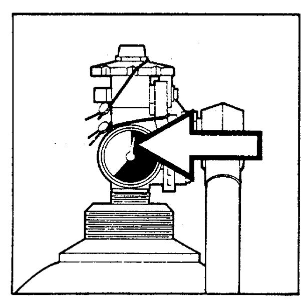


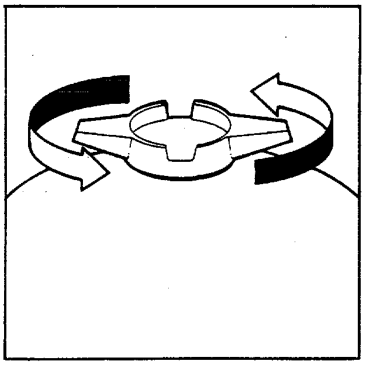
2. Check nameplates for readability, corrosion or looseness.



3. Read cylinder gauge(s). Note pressure, check ambient temperature and refer to Temperature Correction Chart in Appendix A3. Replace cylinder(s) if below minimum pressure.

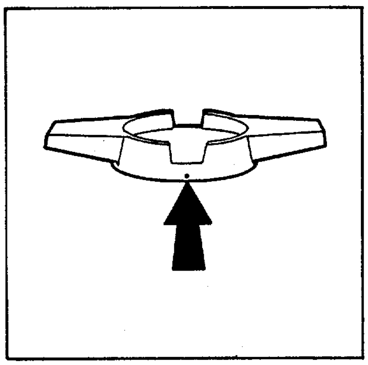
   NOTE: Should cylinder replacement be required, refer to Recharge Section, Pages 4-10 through 4-14, Steps 32 through 39 for correct procedures.



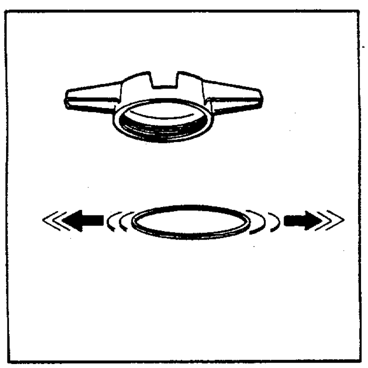


DRY CHEMICAL TANK

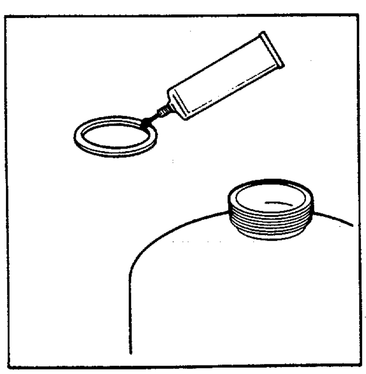
4. Remove fill cap from dry chemical tank.



5. Check pressure relief vent in fill cap for obstruction.

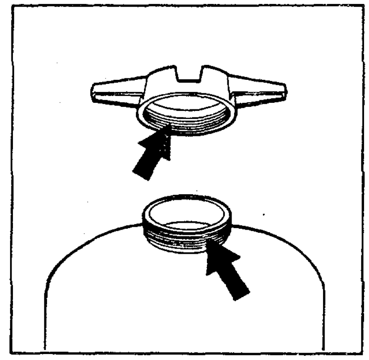


6. Examine fill cap gasket for elasticity, cuts or cracking.

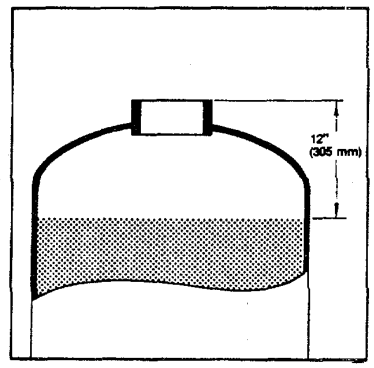


7. Clean and coat gasket lightly with a good grade of high heat resistant grease.

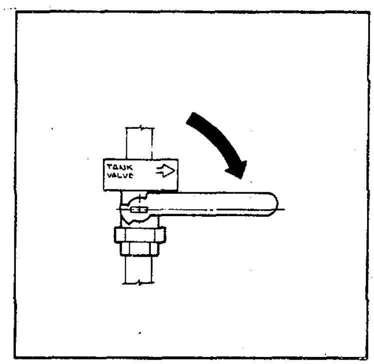
8. Inspect threads in fill cap and on fill opening for nicks, burrs, cross-threading, rough or feathered edges clean and coat fill cap threads lightly with a good grade of high heat resistant grease.

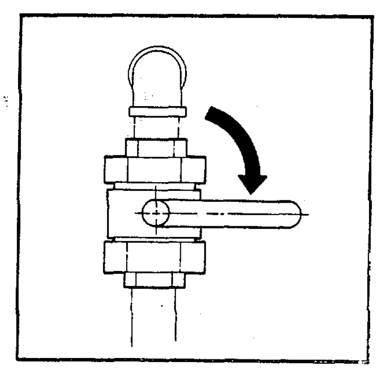


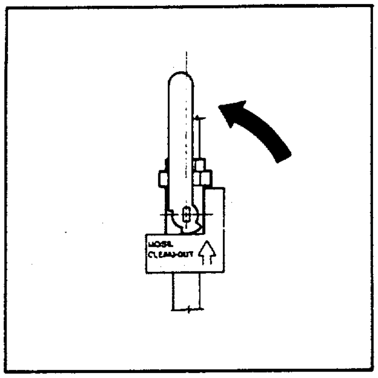
9. Make certain tank is filled with free-flowing Ansul dry chemical to a level of not more than 12 inches (305 mm) from bottom of fill opening.
   NOTE: DO NOT REPLACE FILL CAP AT THIS TIME.



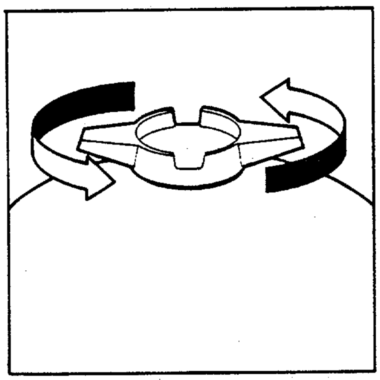
10. Pull ring pin and close RED Tank Valve.
11. Pull ring pin and close BLACK Dry Chemical Valve.





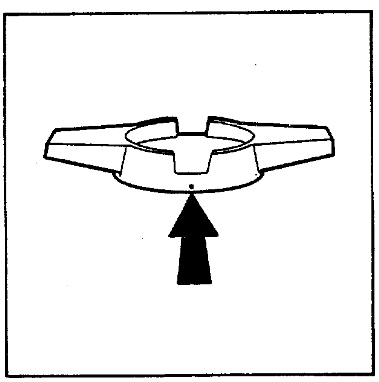


12. Pull ring pin and open BLUE hose clean-out valve.

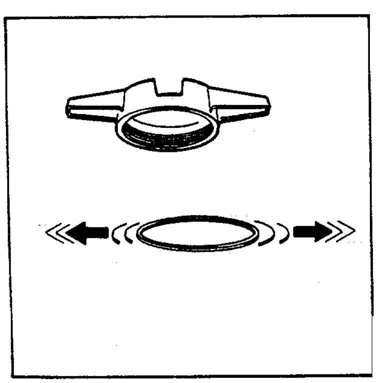


AFFF SOLUTION TANK

13. Remove fill cap from AFFF: solution tank.

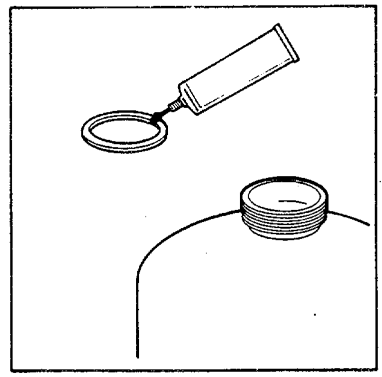


14. Check pressure relief vent in fill cap for obstruction.

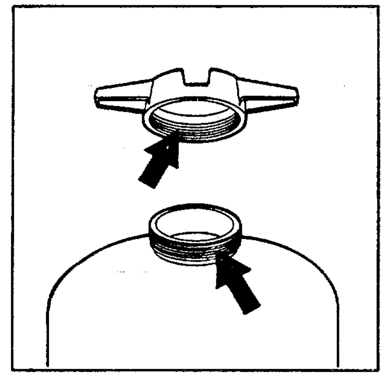


15. Examine fill cap gasket for elasticity, cuts or cracking.

16. Clean and coat gasket lightly with a good grade of high heat resistant grease.



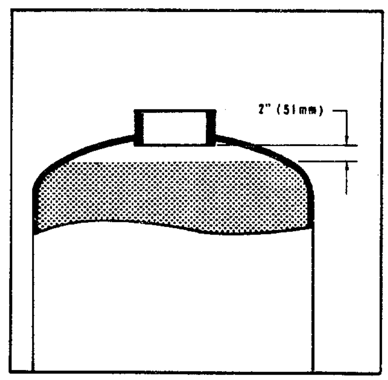
17. Inspect threads in fill cap and on fill opening for nicks, burrs, cross-threading, rough or feathered edges clean and coat fill cap threads lightly with a good grade of high heat resistant grease.



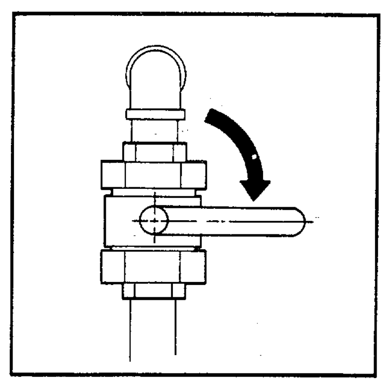
18. Make certain AFFF solution level is about 2 inches (51 mm) from bottom of the fill opening.

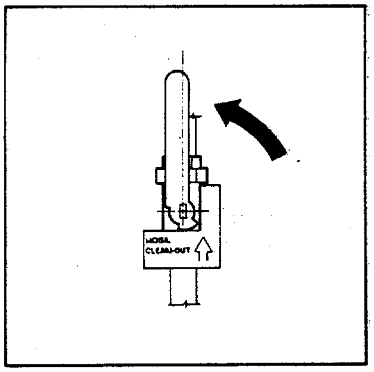
    NOTE: DO NOT REPLACE FILL CAP AT THIS TIME.

    NOTE: If annual maintenance examination is being conducted, perform the steps as outlined in the Field Inspection Manual, Ansul Part No. 31274, in the back of this manual.

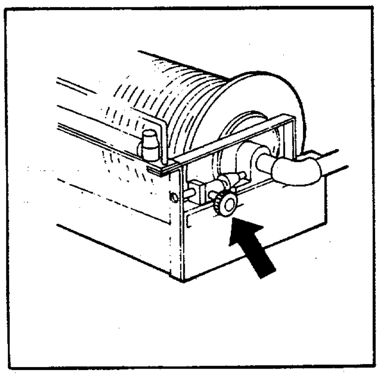


19. Pull ring pin and close BLACK AFFF Valve.

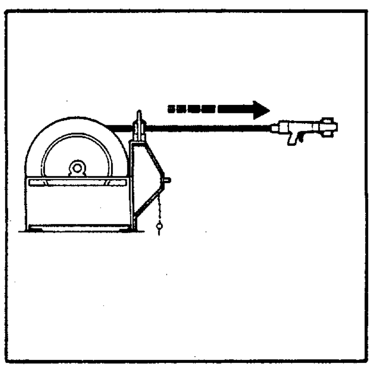




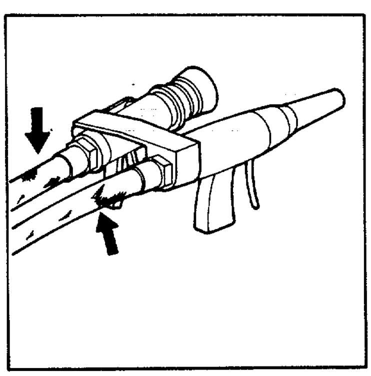
20. Pull ring pin and open BLUE hose clean-out valve.



21. Make certain hose reef is unlocked.

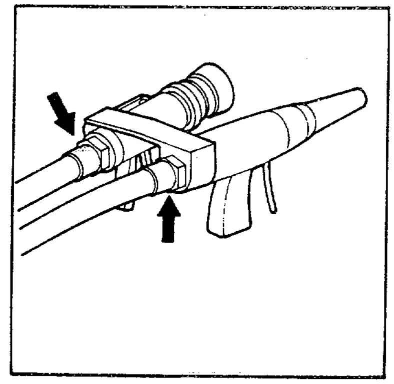


22. Pull ring pin. on nozzle assembly holder and pull all hose from reel.

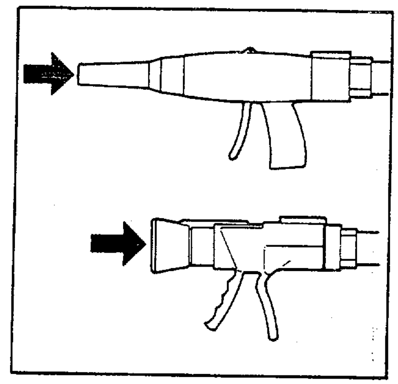


23. Examine hose for abrasion, cracks, or cuts.

24. Make certain hose couplings are tight and inspect for corrosion or mechanical damage.

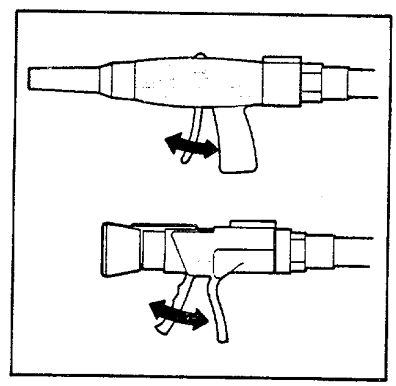


25. Examine nozzle opening(s) for obstruction.

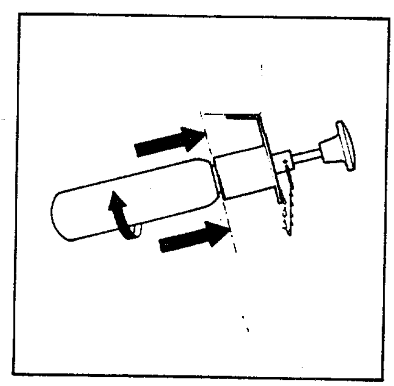


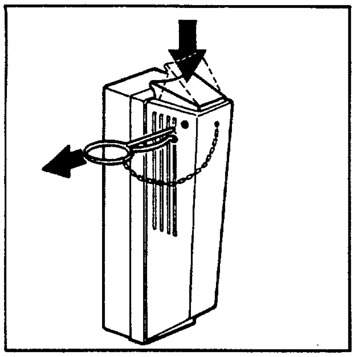
26. Squeeze nozzle triggers to check for free movement.

NOTE: Make certain nozzle triggers are forward in the CLOSED position.



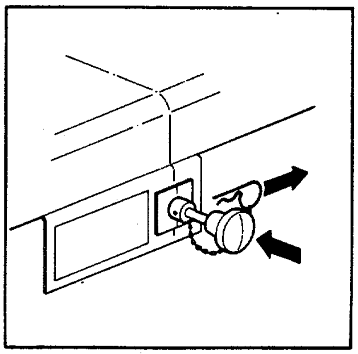
27. Make certain cartridge is fully threaded into dashboard actuator.



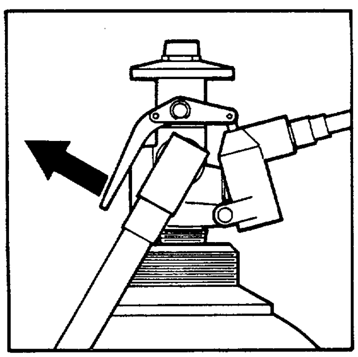


28. Pull ring pin, push button or lever on actuator. (Serves as functional test of valve actuators and cylinder valves.)

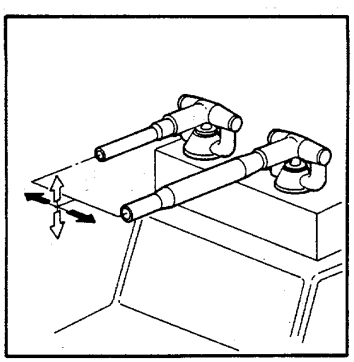
IMPORTANT: The actuator must be operated at every maintenance examination to verify system operation. Completion of all maintenance steps is vital to assure that the system will operate effectively and safely.



NOTE: Alternate use of the remote and dashboard actuators is recommended.



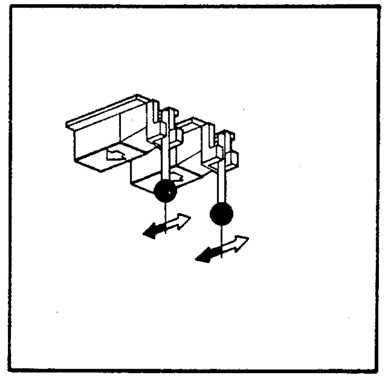
29. Check nitrogen cylinders, all valves should be open.



30. Swing turret horizontally and vertically to check for free movement.

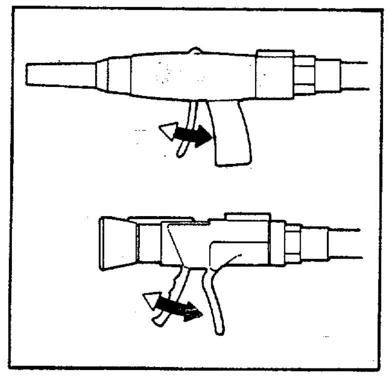
31. Quickly open and close each turret individually to check valve operation.

    NOTE: Escaping gas serves to confirm line is unobstructed and that valve and valve controls are operable.



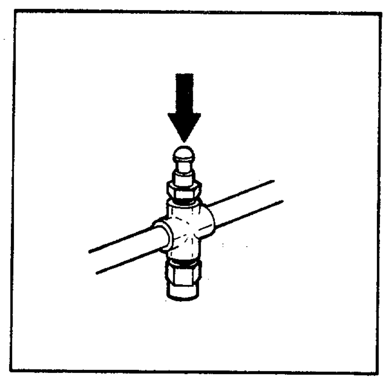
32. Quickly open and close each hand line nozzle individually to check valve operation.

    NOTE: Escaping gas serves to confirm lines are unobstructed and valves are operable.

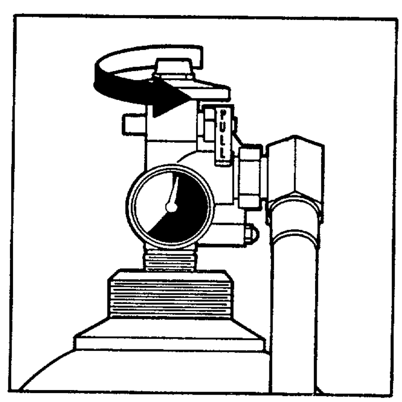


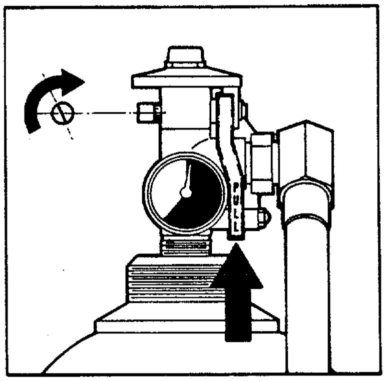
33. Close nitrogen cylinder valves...

    a. Push GREEN Pressure Relief Valve Button to relieve pressure in cylinder actuation system manifold.

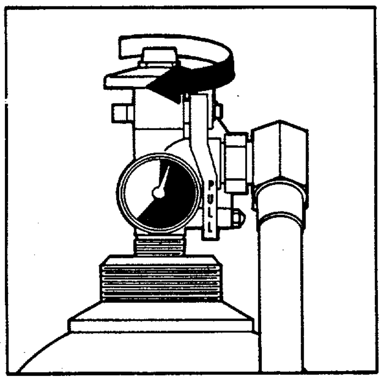


    b. Turn handwheel counterclockwise to OPEN position.

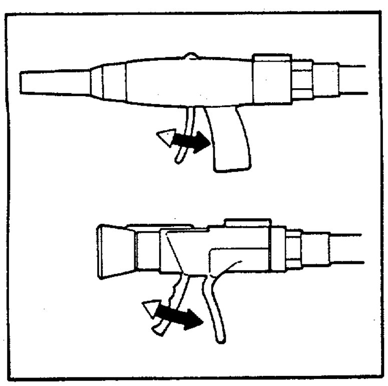




c. Push Quick-Opening lever toward valve body while rotating cross shaft flat clockwise (when facing cross sh from end with flat) to STOP position.

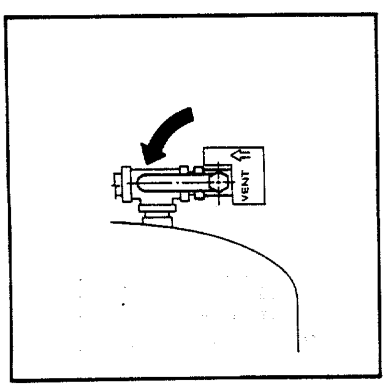


d. Close valve by turning handwheel clockwise, hand tighten.



34. Open dry chemical and AFFF nozzles to relieve pressure remaining in piping and hose lines.

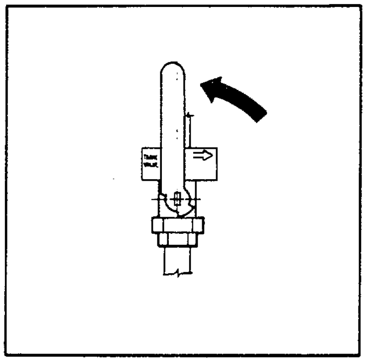
NOTE: DO NOT ATTEMPT TO -RELIEVE PRESSURE THROUGH TURRET.



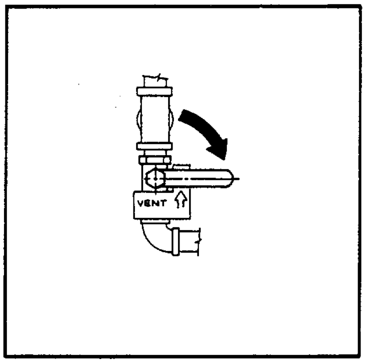
35. Open GREEN vent valve on AFIFF tank to relieve residual pressure due to check valve in AFFF product line.

36. Return all dry chemical tank valve handles to operating position...

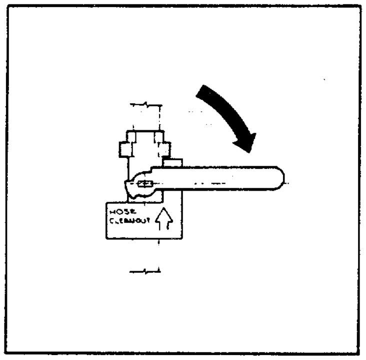
a. RED Tank Valve OPEN



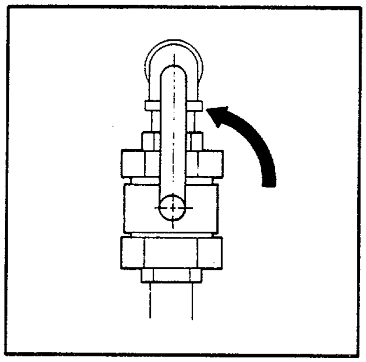
b. GREEN Vent Valve CLOSED

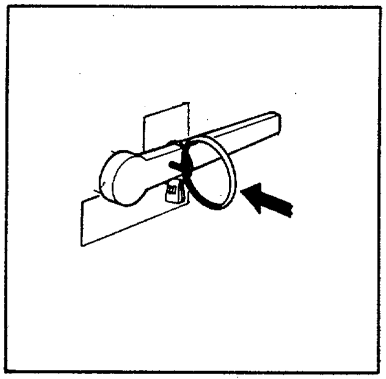


c. BLUE Hose Clean-Out Valve CLOSED

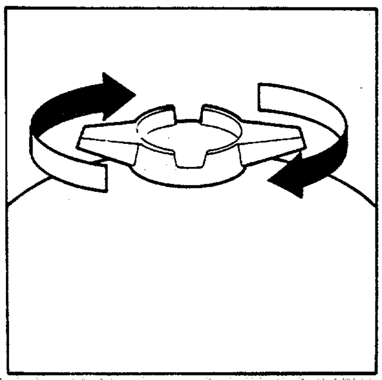


d. BLACK Dry Chemical Valve OPEN

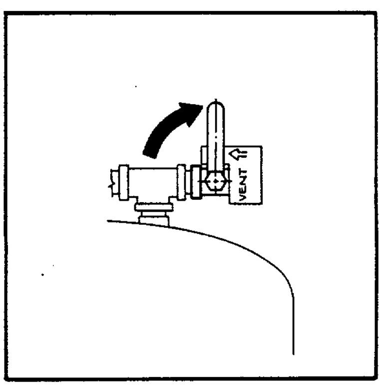




37. Insert ring pin(s) through handle(s) in bracket(s) and seal with visual inspection seal(s), Ansul Part No. 15999.

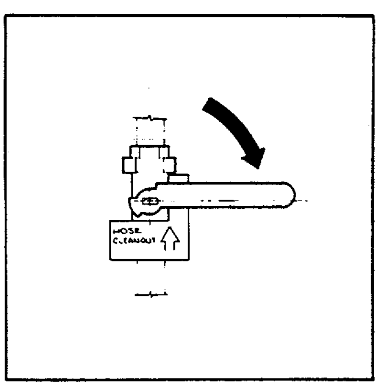


38. Secure dry chemical tank fill cap, hand tighten.



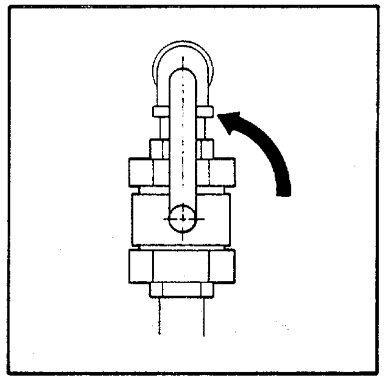
39. Return all AFFF solution tank valve handles to operating position ...

a. GREEN Vent Valve CLOSED

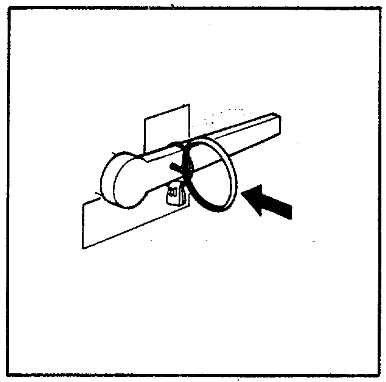


b. BLUE Hose Clean-Out Valve CLOSED

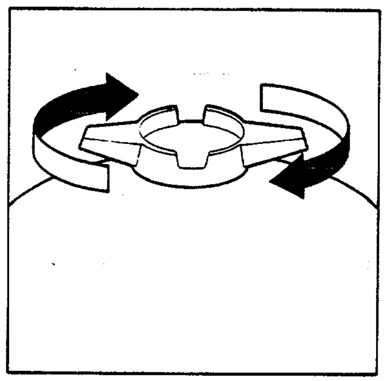
c. BLACK AFFF Valve OPEN



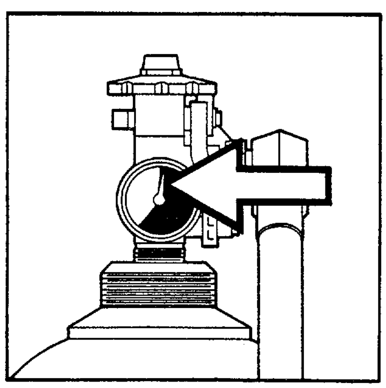
40. Insert ring pin(s) through handle(s) in bracket(s) and seal with visual inspection seal(s), Ansul Part No. 15999.

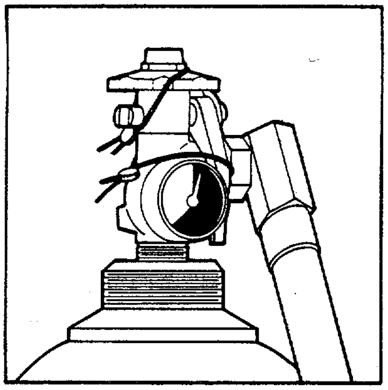


41. Secure AFFF solution tank fill cap, hand tighten.



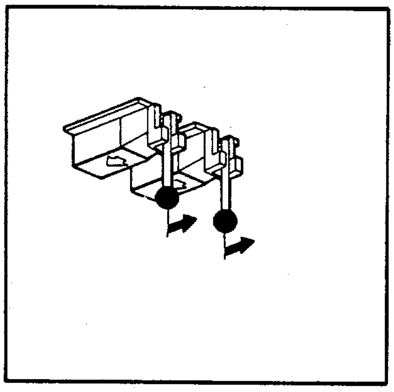
42. Re-read cylinder gauge(s). Note pressure, re-checking ambient temperature and refer to Temperature Correction Chart in Appendix A-3. Replace cylinder(s) if below minimum pressure.



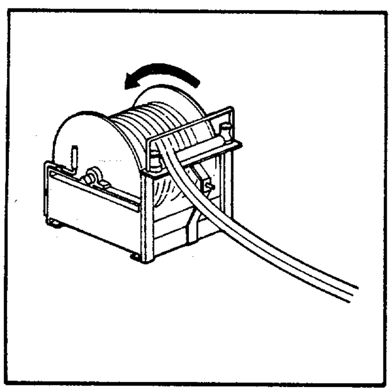


43. Seal handwheel(s) and operating lever(s) with visual inspection seals, Ansul Part No. 197.

NOTE: Should cylinder replacement be required, refer to Recharge Section, Pages 410 through 4-14, Steps 32 through 39 for correct procedures.

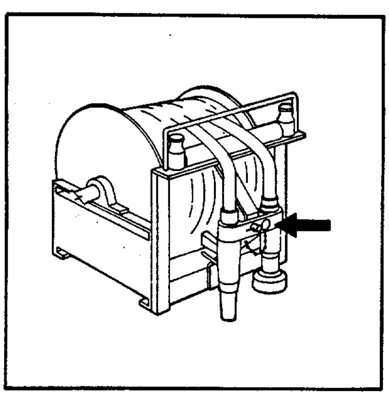


44. Make certain both turret valve operating controls are in the closed position.



45. Rewind hose on reel.

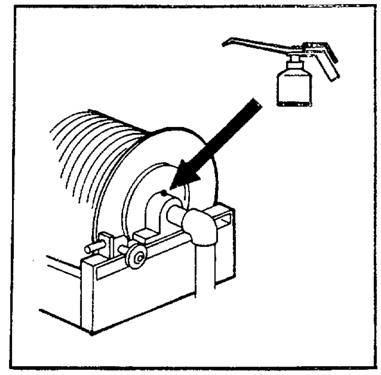
NOTE: Do not lock hose reel.



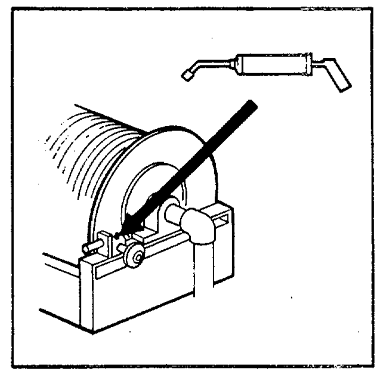
46. Secure nozzle assembly on holder and insert ring pin.

NOTE: Make certain nozzle trigger(s) are forward in the CLOSED position.

47. Oil hose reel inlet body bearing(s).

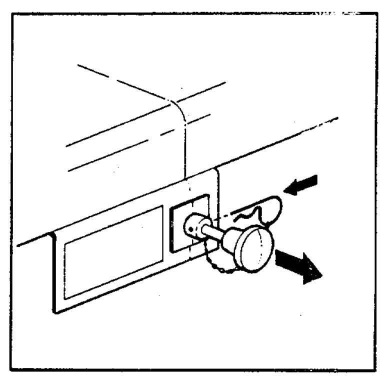


48. Grease hose reel pinion bearing(s).

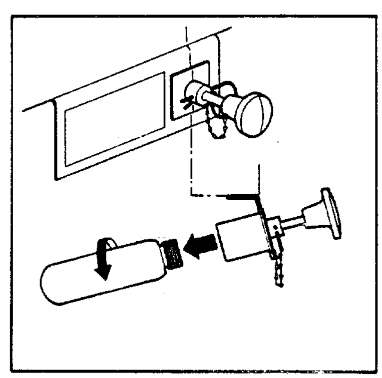


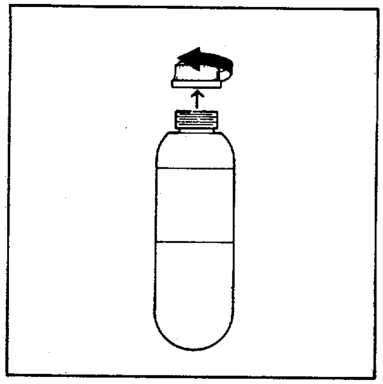
49. Replace cartridge in dashboard actuator ... if used.

    a. Pull out dashboard actuator button and insert ring pin to assure safe cartridge installation.



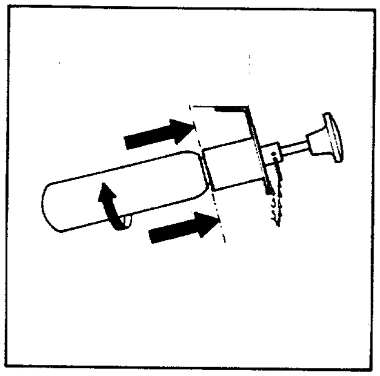
    b. Remove spent cartridge.



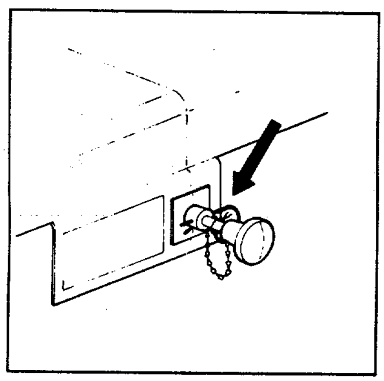


c. Remove safety shipping cap from replacement cartridge. Weigh cartridge. Replace if weight is 1/4 ounce (7.1 g.) or more below weight stamped on cartridge.

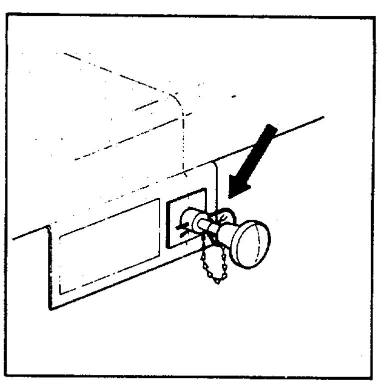
NOTE: Use cartridge, Ansul Part No. 24380 only. Order cartridge shipping assembly, Ansul Part No. 7013, to assure receiving correct replacement cartridge.



d. Screw cartridge into actuator, hand tighten.



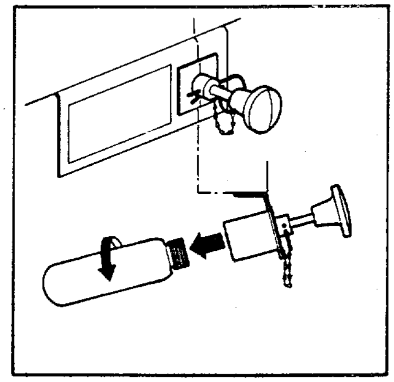
e. Seal ring pin to actuator stem with visual inspection seal, Ansul Part No. 15999.



50. Check cartridge in dashboard actuator... if unused.

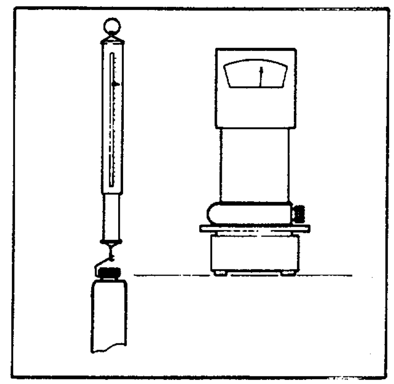
   a. Check that actuator ring pin is properly inserted and that visual inspection seal(s) is intact.

b. Remove cartridge from actuator.

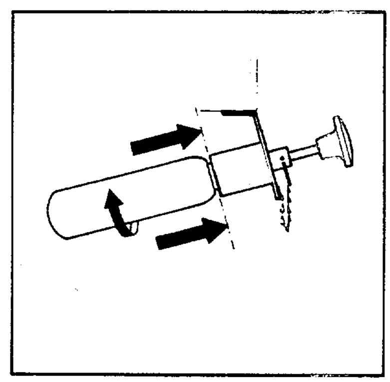


c. Weigh cartridge. Replace if weight is 1/4 ounce (7.1 g.) or more below weight stamped on cartridge.

NOTE: Use cartridge, Ansul Part No. 24380, only. Order cartridge shipping assembly, Ansul Part No. 7013, to assure receiving correct replacement cartridge.

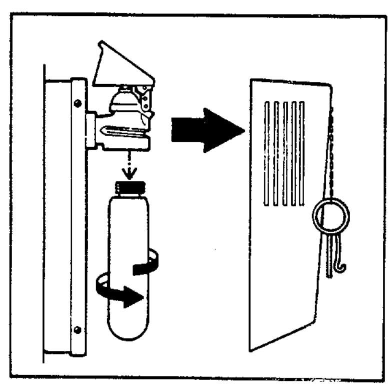


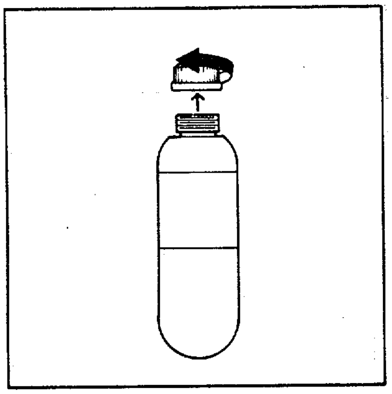
d. Screw cartridge into actuator, hand-tighten.



51. Replace cartridge in remote actuator ... if used.

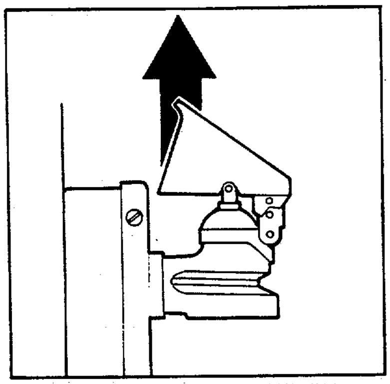
a. Remove guard and spent cartridge.



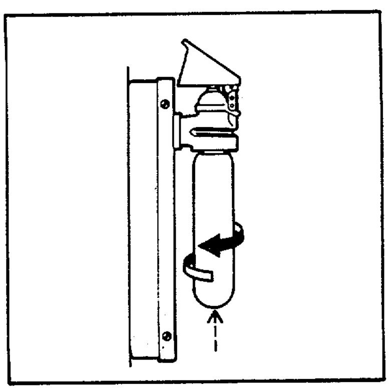


b. Remove safety shipping cap from replacement cartridge. Weigh cartridge. Replace if weight is 1/4 ounce (7.1 or more below weight stamped on cartridge.

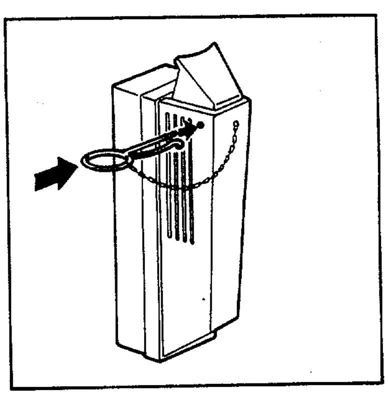
NOTE: Use cartridge, Ansul Part No. 24380, only. Order cartridge shipping assembly, Ansul Part No. 7013, to assure receiving correct replacement cartridge.



c. Raise puncture lever to assure safe cartridge installation.

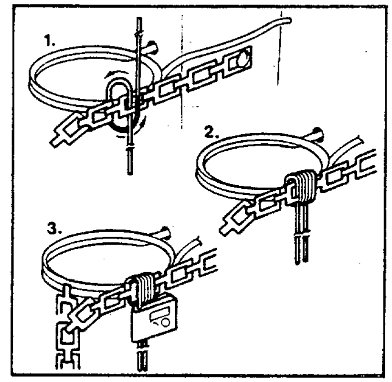


d. Screw cartridge into actuator, hand-tighten.



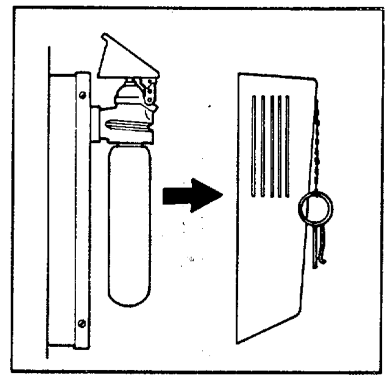
e. Replace cartridge guard and insert ring pin through guard into puncture lever link.

f. Seal with visual inspection seal, Ansul Part No. 15999.

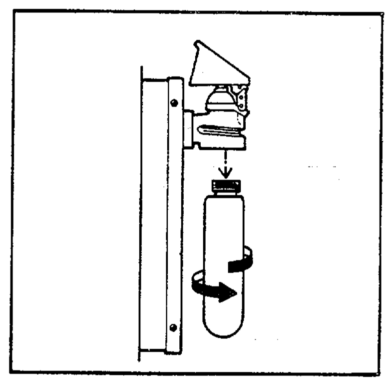


52. Check cartridge in remote actuator... if unused.

a. Pull ring pin and remove guard.

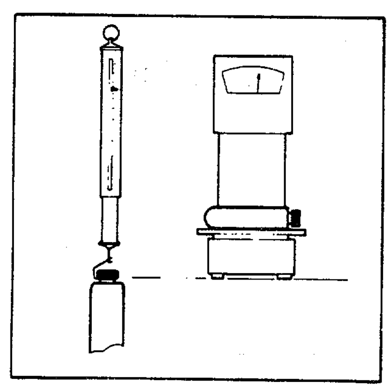


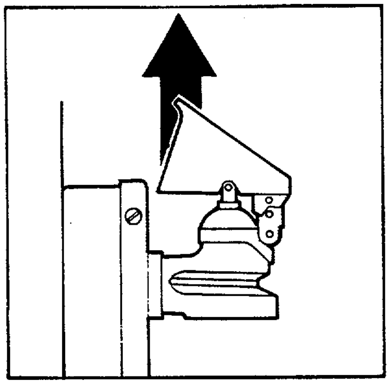
b. Remove cartridge from actuator.



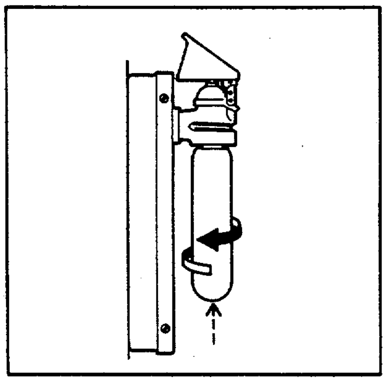
c. Weigh cartridge. Replace if weight is 1/4 ounce (7.1 g.) or more below weight stamped on cartridge.

NOTE: Use cartridge, Ansul Part No. 24380 only. Order cartridge shipping assembly, Ansul Part No. 7013, to assure receiving correct replacement cartridge.

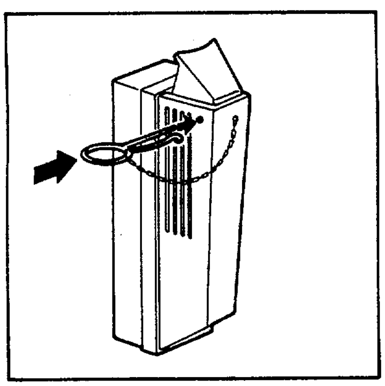




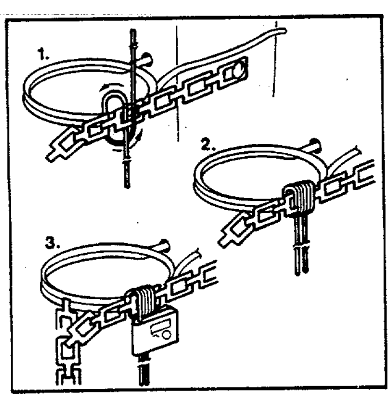
d. Raise puncture lever to assure safe cartridge installation.



e. Screw cartridge into actuator, hand-tighten.

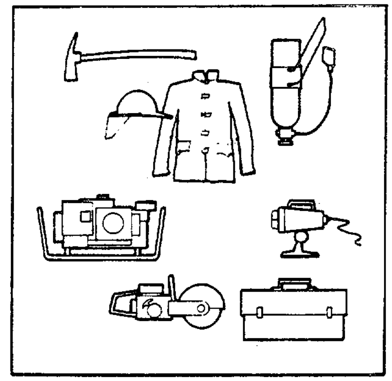


f. Replace cartridge guard and insert ring pin through guard into puncture lever link.

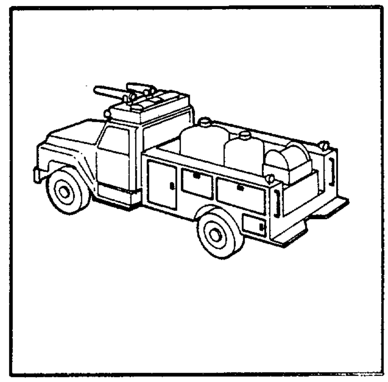


g. Seal with visual inspection seal, Ansul Part No. 15999.

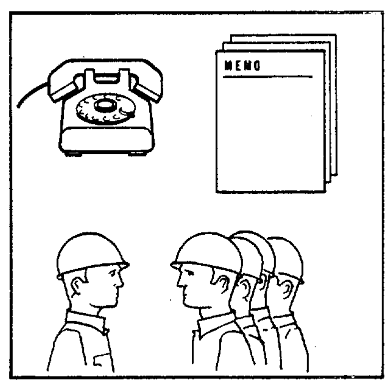
53. Make certain all rescue equipment is properly secured.



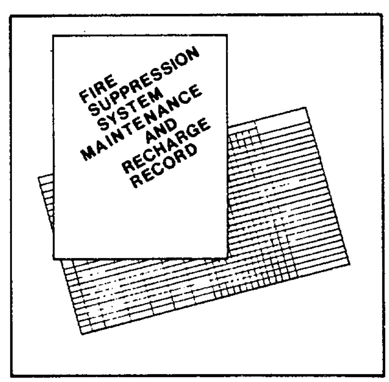
54. Make certain all doors are tightly latched.



55. Notify operating personnel that fire suppressing/securing system is back in service.



56. Record date of maintenance examination.



The best assurance against fire suppressing/securing system malfunction is proper operation, recharge, inspection and maintenance. To remedy as quickly as possible any disorder that may come, the following table lists some of the probable irregularities that may develop and gives suggestions for corrective action.

Service and Repair to remedy any disorder detected through periodic inspection or maintenance examinations:

COMPONENT	DISORDER	CORRECTIVE ACTION
Extinguishing Agent Tank(s)	Dents* or abrasions	Hydrostatically test (see ASME plate affixed to tank) and refinish (clean damaged area and repaint, using a primer and finish coat); or replace tank.
	Rust spots, pits and corrosion deposits	Clean corroded areas with a wire brush, re-placing tank if there is any corrosion penetra-tion; or repaint, using a primer and finish coat.
	Paint peeling	Remove loose paint with a wire brush and repaint using a primer and finish coat.
	Fill opening threads nicked, cross-threaded, corroded or worn	Clean threads with a stiff BRISTLE brush. Small nicks, burrs, rough or feathered edges may be eliminated by careful retapping or filing. If damaged or worn extensively, the tank should be replaced.
	Fill opening gasket seating surface nicked, gouged, corroded or bearing dirt deposits	Clean seating surface with a mild abrasive and lubricate cleaned surface lightly with a good grade of high heat resistant grease. If surface is sharply nicked or deeply gouged, replace tank.
	Seam welds evidencing discoloration or pin holes	Replace tank or consult Product Services, Ansul Fire Protection, Marinette, Wisconsin 54143.
Fill Cap(s)	Abraded, cracked, corroded or otherwise damaged fill cap.	Replace, destroying affected cap to prevent reuse.
	Obstructed fill cap pressure vent hole	Clear vent hole with a stiff, unbreakable wire probe of lesser diameter than vent hole.
	Threads corroded, nicked, cross-threaded or worn	Replace, destroying affected cap to prevent reuse.
	Cut, checked, deformed, stiff, brittle or worn gasket	Replace, coating clean, new gasket lightly with a good grade of high heat resistant grease.

*Record dents for reference in future servicing, replacing shell if dents are other than shallow.

COMPONENT	DISORDER	CORRECTIVE ACTION
Extinguishing Agent(s)	Improper fill level	Fill tank to rated capacity with extinguishing agent specified on nameplate(s) only.
	Caked* dry chemical	Discard agent and refill tank to rated capacity with extinguishing agent specified on name plate(s) only.
	Low AFFF (Aqueous Film-Forming Foam) Premix Solution Concentration	$\frac{6\% - \text{Actual }\%}{100}$ x Tank Capacity = Gallons of ANSULITIE AFFF concentrate Example $\frac{6 - 2}{100}$ x 100 = Gallons of concentrate $\frac{6 - 2}{100}$ x 100 = 2 gallons Replace 2 gallons of solution with 2 gallons of ANSULITE AFFF concentrate and stir solution for 30 seconds using a non-metallic rod.
	Poor AFFF solution film formation and sealability	Replace entire AFFF solution charge
	Low AFFF solution expansion ratio	Replace entire AFFF solution charge.
Gas Tube	Bent, cracked, broken or obstructed	Replace, using factory built and pressure tested assembly only.
	Loose, leaking, damaged, or missing check valve	Replace, using factory built and pressure tested assembly only.

*The term caked, as applied to dry chemical describes a condition. It is best identified as dry chemical containing hard lumps. These lumps will render a dry chemical extinguisher inoperative. The condition usually follows the absorption and later the evaporation of an unusual amount of moisture. It is often confused with packing a condition produced by normal settling, by vibration or by impact. There is no known case on which there is evidence that an Ansul extinguisher was made inoperative as a result of packing. A simple procedure to determine which condition exists is the Underwriters Laboratories four inch drop to a clean hard surface test. If the lumps do not break up into individual particles, caking is present.

COMPONENT	DISORDER	CORRECTIVE ACTION
Dry Chemical Pick-Up Tube	Obstructed	Disconnect pipe and fittings at dry chemical tank outlet and use plumbers drain auger to clear tube.
Nameplate(s)	Unreadable wording	Use a mild abrasive (scouring powder) to clean plate. If readability cannot be improved, replace nameplate.
	Loose	Remove nameplate and inspect area under plate. If corroded, see "Extinguishing Agent Tank(s) - Rust Spots, Pits and Corrosion Deposits" and take appropriate corrective action as surface condition would indicate or clean area (repaint using a primer and finish coat if necessary) and reaffix nameplate using a good grade of heatless adhesive.
	Missing	Replace with correct nameplate (see applicable parts list).
Nitrogen Cylinder(s)	Rust spots, pits and corrosion deposits	Clean corroded areas with wire brush, replacing cylinder if there is any corrosion penetration; or repaint using a primer and finish coat.
	Dents or abrasions	Depressurize, remove valve and destroy both internal and external threads on the cylinder to render the vessel unusable.
	Paint peeling	Remove loose paint with a wire brush and repaint using a primer and finish coat.
	Safety shipping cap threads on cylinder nicked, cross-threaded, corroded or worn	Clean threads with a stiff bristle brush, small nicks, burrs, rough or feathered edges may be eliminated by careful filing. If damaged, worn or corroded severely, the cylinder should be scrapped and replaced.
	Valve leakage suspected	Apply soap solution over valve opening, around valve, to cylinder joint and all other joints, including the valve stem. If soap solution bubbles at any point, depressurize cylinder and replace valve assembly.
	Corroded, damaged or jammed valve handwheel or pull lever	Depressurize cylinder, check freedom of movement, clean and repair or replace affected part(s); or replace valve assembly.
	Immovable, jammed, loose (tap lightly to check) or missing gauge pointer	Depressurize cylinder and replace valve assembly or consult Product Services, Ansul Fire Protection, Marinette, Wisconsin 54143.

COMPONENT	DISORDER	CORRECTIVE ACTION
Nitrogen Cylinder(s) (Continued)	Missing, deformed or broken gauge crystal or bezel	Replace crystal and bezel assembly (see applicable parts list).
	Wrong gauge	Depressurize cylinder and replace valve assembly or consult product Services, Ansul Fire Protection, Marinette, Wisconsin 54143.
	Unreadable, faded or corroded dial	Depressurize cylinder and replace valve assembly or consult Product Services, Ansul Fire Protection, Marinette, Wisconsin 54143.
	Gauge pointer below acceptable operating range	Check pressure with test gauge, Ansul Part No. 2737, tapping valve gauge lightly to check for mechanical disorder (gauge pointer loose or immovable). If test gauge pressure reading confirms valve gauge pressure reading, perform leakage test as outlined in "Valve Leakage Suspected", taking the! appropriate corrective action indicated. If valve leak test result is negative, test cylinder for pinhole leak(s), discard cylinder after rendering it unusable by depressurization, removal of valve and destruction of internal and external threads if leak(s) is detectable or consult Product Services, Ansul Fire Protection, Marinette, Wisconsin 54143.
	Gauge pointer above acceptable operating range	Check pressure with test gauge, Ansul Part r 2737, tapping valve gauge lightly to check for mechanical disorder (gauge pointer loose or immovable) and then bleed off excess pressure or depressurize and replace valve assembly.
	Corroded, bent or worn cylinder retaining clamp(s)	Clean and refinish; repair and refinish; or replace.
	Loose or binding cylinder retaining clamp(s)	Adjust fit by tightening or loosening clamp; adjust screw or replace clamp(s).
	Worn or missing protective cylinder clamp webbing or grommet	Replace webbing, Ansul Part No. 3360 or grommet, Ansul Part No. 8688.
	Wrong cylinder retaining clamp(s)	Replace clamp(s) with type specified by Ansul only.
Pressure Regulator(s)	Corroded, dented or otherwise damaged	Replace regulator(s).
	Regulator safety relief valve is corroded, plugged, dented, broken or missing	Replace valve.

COMPONENT	DISORDER	CORRECTIVE ACTION
Expellant Gas and Agent Control Valve(s)	Broken or missing visual inspection seal(s)	Replace seal(s).
	Bent, corroded or binding ring pin(s)	Replace ring pin(s).
	Bent, broken or missing valve handle	Remove, repair and reassemble or replace.
	Valve immovable, stiff, inoperable or leaking	Disconnect, disassemble and clean, replacing parts as required.
Pressure Relief Valve(s)	Corroded, plugged, dented, broken or missing	Clean, repair and test before reinstalling or replace valve(s).
Hose (Expellant Gas and Agent)	Cut, cracked, abraded, or deformed exterior	Replace entire hose assembly or hose only if coupling(s) are reusable type.
	Corroded, or cracked coupling(s), swivel joint or ferrule	Replace entire hose assembly or coupling(s) only if reusable type.
	Corroded, cross-threaded or worn coupling threads	Replace entire hose assembly or coupling(s) only if reusable type.
	Internal blockage	Clear by blowing dry air or nitrogen at 220 PSI through hose. **CAUTION:** Do not leave open end of hose unattended unless adequately restrained to prevent whipping, endangering life/safety.
	Coupling gasket(s) brittle, compression set, cut, cracked or missing	Replace, lubricating clean, new gasket(s) lightly with a good grade of high heat resistant grease before insertion.
Nozzle(s)	Wrong nozzle	Replace with type nozzle recommended by the manufacturer (Ansul).
	Valve body or barrel abraded, corroded, cracked or dented	Replace valve or barrel if in any way damaged or deformed.
	Operating handle broken or deformed	Replace handle.

COMPONENT	DISORDER	CORRECTIVE ACTION
Nozzle(s) (Continued)	Operating handle loose	Adjust securement screw by tightening.
	Operating handle binding or immovable	See "Leaking Nozzle" below.
	Leaking nozzle, plugged tip and/or discharge passage	Disassemble and clean deposits from internal passages and parts with small, stiff bristle' brush; examine gaskets and O-rings and replace if cut, checked, deformed, stiff, brittle or worn. Reassemble nozzle and pressure test at 220 PSI.
	Threads nicked, worn or cross-threaded	Replace thread bearing component (barrel, valve body or adaptor).
	Gasket(s) or O-ring(s) brittle, compression set, cracked, cut or missing	Replace, lubricating gasket(s) or O-ring(s) lightly with a good grade of high heat resistant grease before insertion.
Hose Reel(s)	Dents or abrasions	Repair affected area of item, clean and repaint, using a primer and finish coat; replace individual item if damage interferes with operation.
	Rust spots, pits, corrosion deposits or peeling paint	Clear corroded areas with a wire brush (replace any item seriously weakened by corrosion penetration) and repaint, using a primer and finish coat.
	Reel binding or stiff operating	Oil inlet body bearing(s) and grease pinion gear.
	Reel immovable	Disassemble inlet swing joint assembly(ies), clean deposits from internal passages with a stiff brass or bristle brush, replace gasket(s) or 0-ring(s) if cut, checked,. deformed, brittle or worn and reassemble, oiling inlet body bearing and greasing pinion gear.
	Pressure leakage	See "Reel Immovable"' above if leakage is discovered at a fitting other than the hose to reel connection.

COMPONENT	DISORDER	CORRECTIVE ACTION
Pneumatic Actuation System	Corroded, jammed or broken puncture lever	Clean, repair to free movement, or replace.
	Dull, bent or damaged puncture pin	Replace pin, making certain safety retaining ring is secure in groove near tip.
	Corroded, nicked, cross-threaded or worn cartridge receiver threads	Remove receiver, destroy threads, discard and replace
	Obstructed cartridge receiver pressure vent hole	Clear vent with stiff unbreakable probe of lesser diameter than vent hole.
	Wrong cartridge	Replace cartridge with type specified by Ansul only (refer to applicable parts list).
	Gas cartridge corroded, dented or abraded; or gas cartridge cross-threaded or worn	Depressurize (disconnect high pressure line to cylinder(s) and push remote actuator lever to safely vent pressure) and discard after destroying internal and external threads to prevent reuse.
	Scored, cut or corroded gas cartridge seal disc; or illegible identification or weight markings	Depressurize (disconnect high pressure line to cylinder and push lever to safely vent pressure) and replace with factory filled and sealed cartridge. Install safety shipping cap on empty cartridge and return to supplier for refill.
	Wrong cartridge seal used in previous recharge	Remove and replace with factory filled and sealed cartridge, returning replaced cartridge to supplier.
	Corroded, jammed, cracked, broken or leaking nitrogen cylinder valve actuator	Disassemble, clean, replace affected parts and conduct operation test (see Maintenance Section or replace).
	Obstructed pneumatic valve actuator piston downstroke pressure relief vent	Clear vent with stiff, unbreakable probe of lesser diameter than vent hole.
Turret		See Nozzle Section

CONTENTS

ANSUL TWIN-AGENT FIRE FIGHTING TRUCK

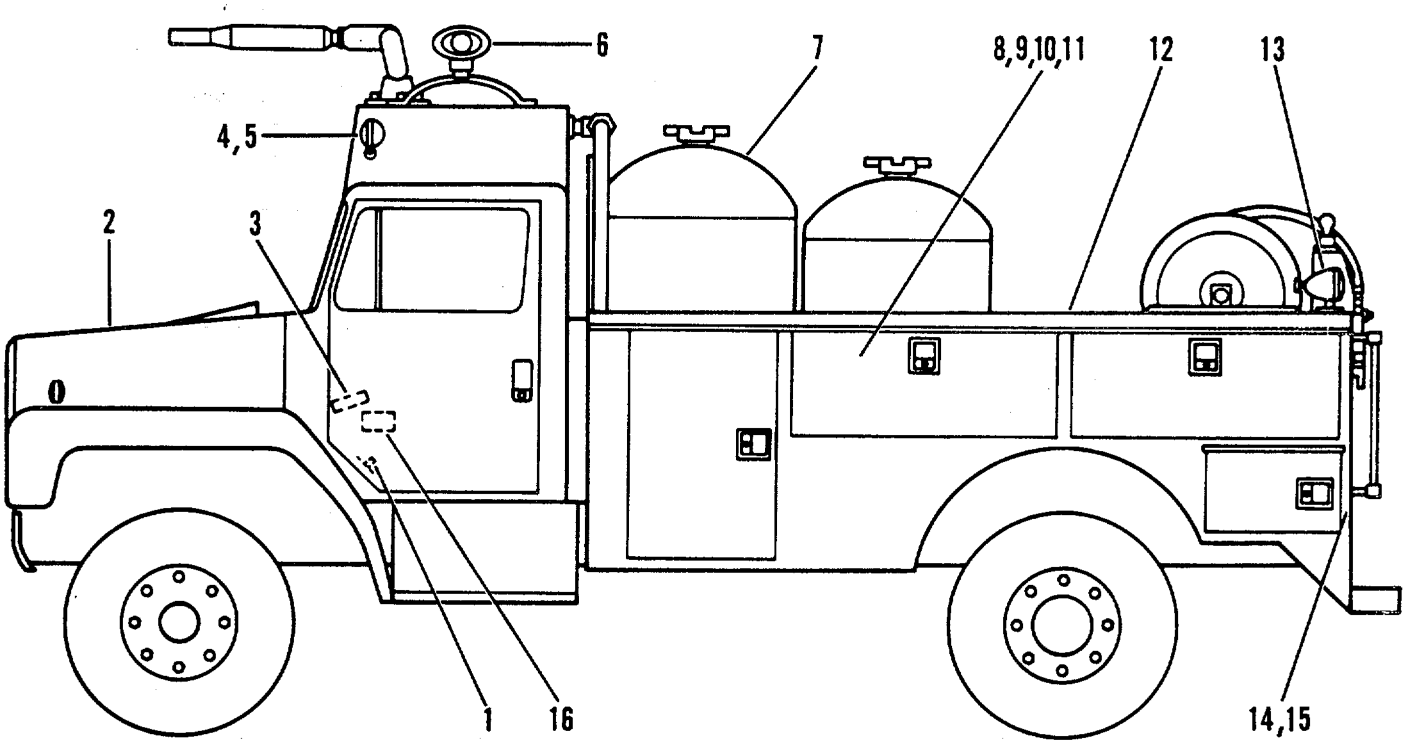
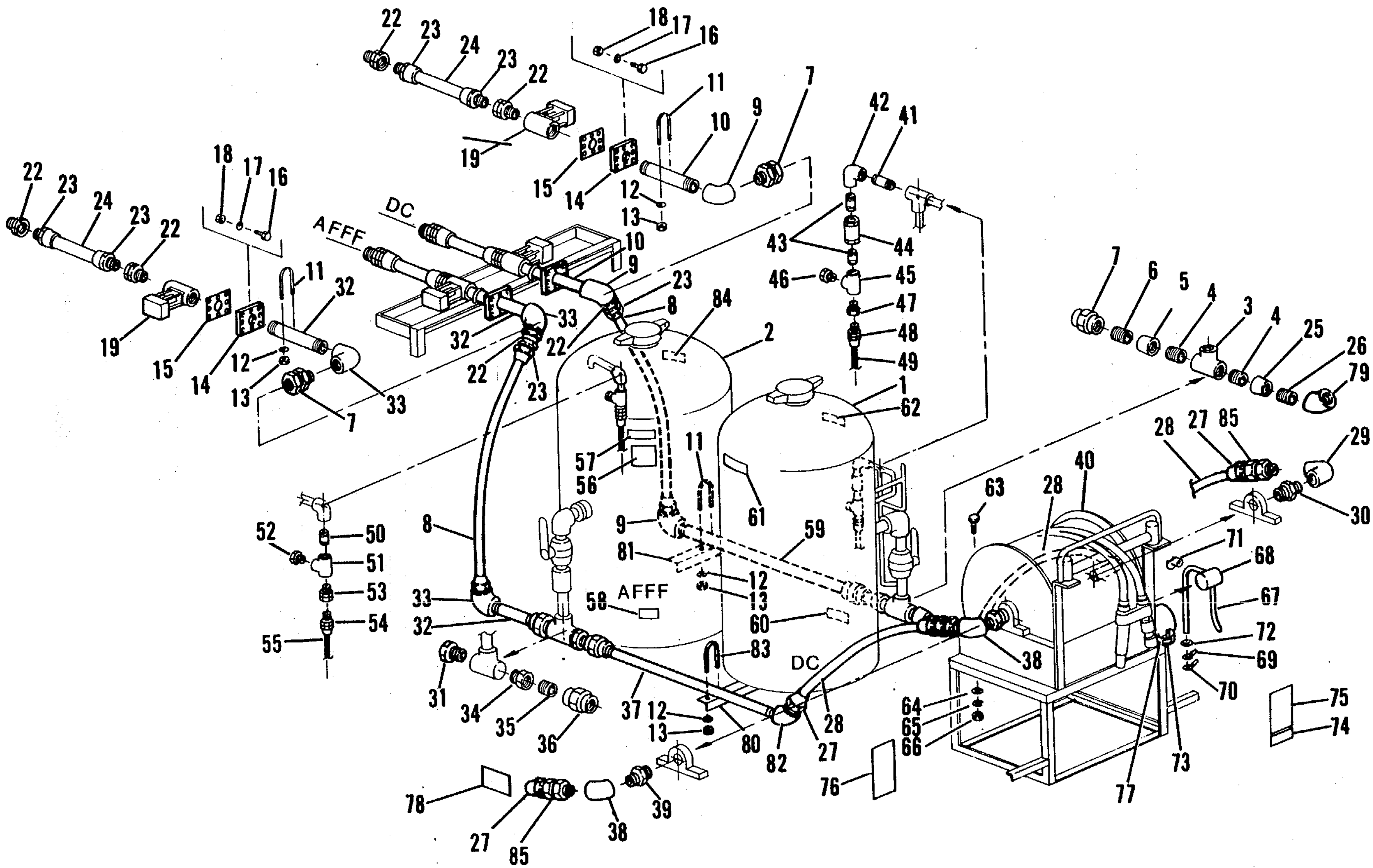


FIGURE NO.	DESCRIPTION	PART NO.
-	Twin Agent (1350 PKP/200 AFFF) Fire Fighting Truck	S-52530
1	Floor Mounted Switch	S-52920
2	International Chassis Specification 4x4	S-52528
3	Siren/PA Control System	S-52917
4	Spotlight - Left Side	S-52540
5	Spotlight - Right Side	S-52541
6	Warning Light	S-52531
7	1350 PKP/200 AFFF Suppressing/Securing System	S-52527
8	Rescue Saw ..	S-27770
9	Hydraulic Rescue Kit	S-52536
10	Aircraft Rescue Tool Kit	S-52537
11	Rescue Tool	S-52534
12	International Service Body	S-52529
13	Deck Light (2)	S-28259
14	Actuation Piping (Not Shown)	S-52539
15	Cylinder Piping Assembly (Not Shown)	S-52535
16	Identification Nameplate	S-52274

ANSUL TANK AND PIPING LAYOUT



ANSUL TANK AND PIPING LAYOUT

FIGURE NO.	DESCRIPTION	QUANTITY	PART NO.
-	Tank and Piping Layout	1	S-52527
1	DC Tank Assembly, 1500 Lb.	1	S-63087
2	AFFF Tank Assembly, 200 Gal.	1	S-52538
3	Tee 3"	1	12744
4	Nipple 3" x 3"	2	8284
5	Coupling, Reducing 3" x 2"	1	19956
6	Nipple, Close 2"	1	16396
7	Union 2"	1	30393
8	Hose 2" x 60"	2	19578
9	Elbow 2" x 900	2	14232
10	Pipe 2" x 11"	1	2918
11	U-Bolt	3	14626
12	Lockwasher 1/4"	8	968
13	Hex Nut, 20 UNC-1/4"	8	545
14	Backup Plate	2	16795
15	Gasket	2	16794
16	Machine Screw, Rd. Hd.,#10-32 NF x 11/16 (S.S.)	16	3855
17	Lockwasher #10 (S.S.)	16	14235
18	Hex Nut,#10-32 NF (S.S.)	16	14732
19	Ball Valve 2" and Actuator Assembly	2	29345
20	Valve, Ball 2" (Brass) (Not Shown)	2	4281
21	Actuator, Ball Valve (Not Shown)	2	29347
22	Union, Swivel Adapter 2" (Brass)	6	16153
23	Coupling, Reusable 2" (Brass)	8	16154
24	Hose 2" x 9"	2	19578
25	Coupling, Reducing 3" x 1-1/2"	1	1689
26	Nipple, Close 1-1/2"	1	16282
27	Coupling, Reusable 1-1/2" (Brass)	4	16158
28	Hose 1-1/2" x 48"	2	14617
29	Elbow 1-1/2" x 900	1	4275
30	Nipple 1-1/2" x 2-1/2"	1	2039
31	Bushing, Reducing 3" x 2" (Brass)	1	19950
32	Pipe 2" x 11" (Brass)	2	19864
33	Elbow 2" x 900 (Brass)	2	19849
34	Bushing, Reducing 3" x 1-1/2" (Brass)	1	19857
35	Nipple, Close 1-1/2" (Brass)	1	19843
36	Union, 1-1/2" (Brass)	1	19980
37	Pipe 1-1/2" x 39" (Brass)	1	19854
38	Elbow 1-1/2" x 900 (Brass)	1	19829
39	Nipple 1-1/2" x 2-1/2" (Brass)	1	19830
40	Hose Reel Assembly	1	S-52806

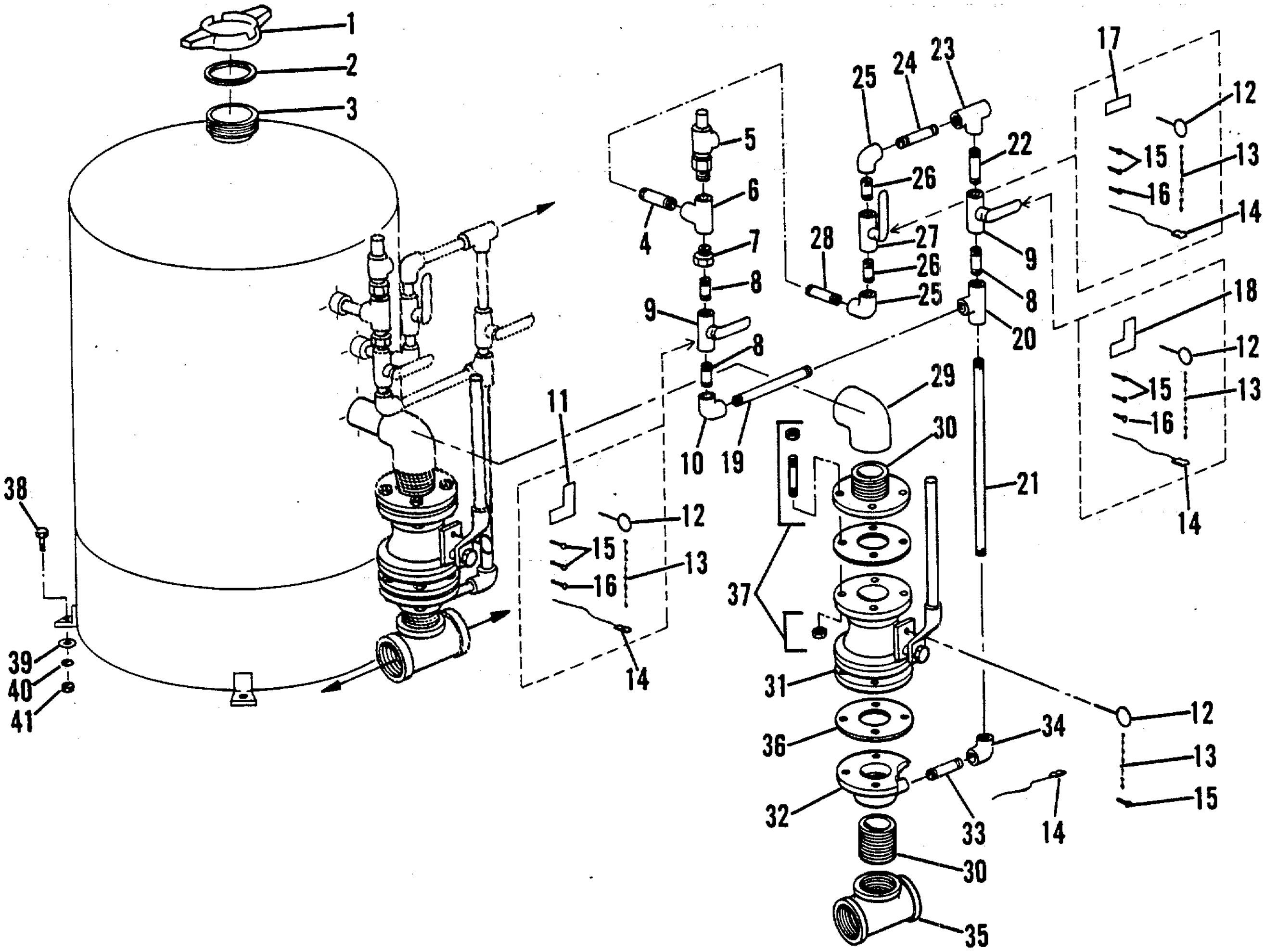
ANSUL TANK AND PIPING LAYOUT (Cont.)

FIGURE NO.	DESCRIPTION	QUANTITY	PART NO.
1	Nipple, Close 1-1/4"	1	16278
42	Elbow 1-1/4" x 900	1	4274
43	Nipple 1-1/4" x 2-1/2"	2	2069
44	Valve, Check 1-1/4"	1	12549
45	Tee 1-1/4"	1	12819
46	Bushing, Reducing 1-1/4" x 1/4"	1	13057
47	Union, Swivel Adapter 1-1/4"	1	19609
48	Coupling, Reusable 1-1/4"	2	19608
49	Hose 1-1/2" x 106"	1	19606
50	Nipple 3/4" x 2"	1	1765
51	Tee 3/4"	1	2078
52	Bushing, Reducing 3/4 x 1/4"	1	1770
53	Union, Swivel Adapter 3/4"	1	16159
54	Coupling, Reusable 3/4"	2	19611
55	Hose 3/4" x 148"	1	19610
56	Plate, AFFF Refill Chart	1	S-52316
57	Plate, AFFF Tank I.D.	2	14206
58	Plate, Name 'AFFF Product Valve"	1	S-52262
59	Pipe 2" x 42"	1	25604
60	Plate, Name "D.C. Product Valve"	1	S-52263
61	Plate, D.C. Tank I.D.	2	19149
62	Plate, Name "D.C. Relief Valve"	1	S-52265
63	Bolt, Hex Hd 3/8"-16NC x 1-1/2" (SS)	4	16512
64	Washer, Flat 3/8" (SS)	4	16618
65	Lockwasher 3/8" (SS)	4	14929
66	Nut, Hex 3/8"-16NC (SS)	4	14928
67	Hose, Sealtite Metal 12" Lg.	1	19922
68	Hose, Sealtite Metal 36"	1	19922
69	Terminal, Solderless	1	19930
70	Terminal, Solderless	1	19931
71	Elbow, Pulling 900	1	19070
72	Grommet	1	16592
73	Guard	1	19410
74	Plate, Patent	1	4070
75	Plate, Name "To Operate"	1	16150
76	Plate, Name "Recharge"	1	19147
77	Plate, Name "Hose Reel Rewind Switch"	1	S-52268
78	Plate, Name "Identification"	2	19563
79	Elbow 1-1/2" x 450	1	4277
80	Angle 2" x 2" x 1/4" x 8"	1	2987
81	Angle 2" x 2" x 1/4" x 7"	1	2987
82	Elbow 1-1/2" x 450 (Brass)	1	19181

ANSUL TANK AND PIPING LAYOUT (Cont.)

FIGURE NO.	DESCRIPTION	QUANTITY	PART NO.
3	Bolt, U	1	30858
84	Plate, Name "AFFF Relief Valve"	1	S-52264
85	Union, Swivel Adapter 1-1/2" (Brass)	2	16157
-	Twin Turret Handle and Tie Rod Assembly (Not Shown)	1	S-52797
-	Hand Valve and Pneumatic Actuator Assembly (Not Shown)	1	S-52798
-	Grommet, For Actuation Line Through Firewall (Not Shown)	1	15989
-	Funnel, AFFF (Not Shown)	1	14315
-	Tube, AFFF Measuring (Not Shown)	1	16707
	Funnel, Dry Chemical (Not Shown)	1	1196
-	Wire, #16-2 (24" Lg.) (Not Shown)	1	19920
-	Cable, Battery #4 (288" Lg.) (Not Shown)	1	19921

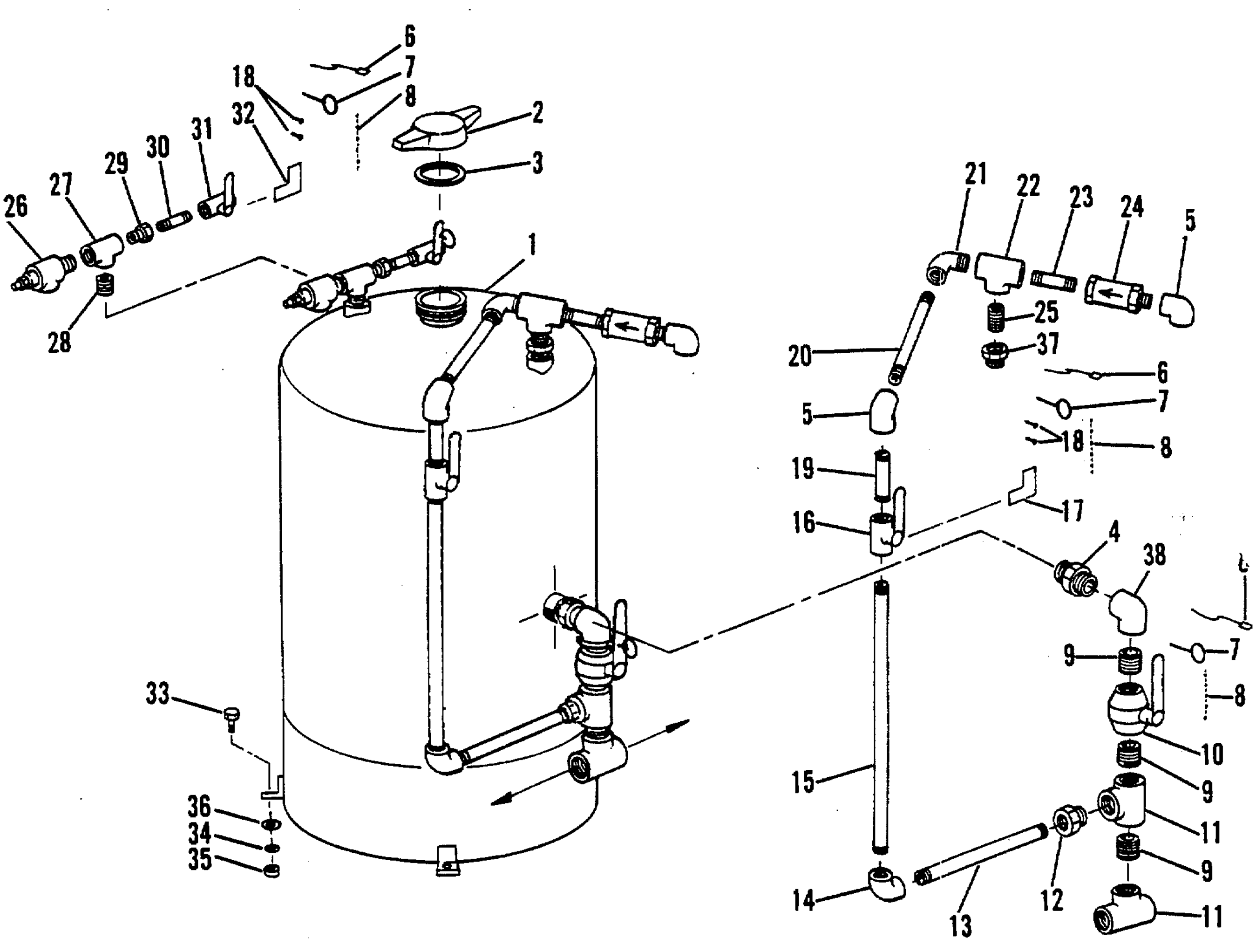
ANSUL DRY CHEMICAL TANK ASSEMBLY



ANSUL DRY CHEMICAL TANK ASSEMBLY

FIGURE NO.	DESCRIPTION	QUANTITY	PART NO.
-	Dry Chemical Tank Assembly	Ref	S-63087
1	Cap, Fill Assembly	1	3460
2	Gasket	1	3461
3	Tank Assembly	1	4545
4	Nipple 1-1/4" x 4-1/2"	1	16279
5	Valve, Safety	1	2018
6	Tee 1"	1	2146
7	Bushing, Reducing 1" x 1/2"	1	1845
8	Nipple, Close 1/2"	3	1626
9	Valve, Ball	2	26001
10	Elbow 1/2 x 900	1	1965
11	Bracket, Nameplate	1	19993
12	Pin, Ring	4	598
13	Chain 7" Lg.	4	2367
14	Seal, Visual Inspection	4	15999
15	Rivet, Pop 3/16"	7	25540
16	Rivet, Pop .	4	15053
17	Bracket, Nameplate	1	19995
18	Bracket, Nameplate	1	19992
19	Pipe 1/2" x 10-1/4" Lg.	1	2462
20	Tee 1/2"	1	10935
21	Pipe 1/2" x 18" Lg.	1	2462
22	Pipe 1/2" x 7-1/4" Lg.	1	2462
23	Tee, Reducing 1-1/4 x 1-1/4 x 1/2"	1	13336
24	Nipple 1-1/4" x 4"	1	4273
25	Elbow 1-1/4" x 900	2	4274
26	Nipple, Short 1-1/4"	2	4276
27	Valve, Ball	1	25856
28	Nipple 1" x 5"	1	2284
29	Elbow 3" x 900	1	12747
30	Pipe 3" x 3-1/2" Lg.	2	12743
31	Valve, Flanged Ball 3"	1	50571
32	Flange, Side Outlet 3" - 150#	1	51187
33	Nipple 1/2" x 2-1/2"	1	16267
34	Elbow, Union 1/2" x 900	1	16322
35	Tee 3"	1	12744
36	Gasket	2	54404
37	Stud Bolt 3/8" w/2 Nuts	8	19183
38	Screw, Hex Hd. 3/4"-10NC x 2" (S.S.)	4	16554
39	Washer, Flat 3/4" (S.S.)	4	17227
40	Lockwasher 3/4" (S.S.)	4	16059
41	Nut, Hex 3/4"-10NC (S.S.)	4	16067
-	Gasket, Manhole (Not Shown)	1	17188
-	Tube Assembly, Gas (Not Shown)	4	13363

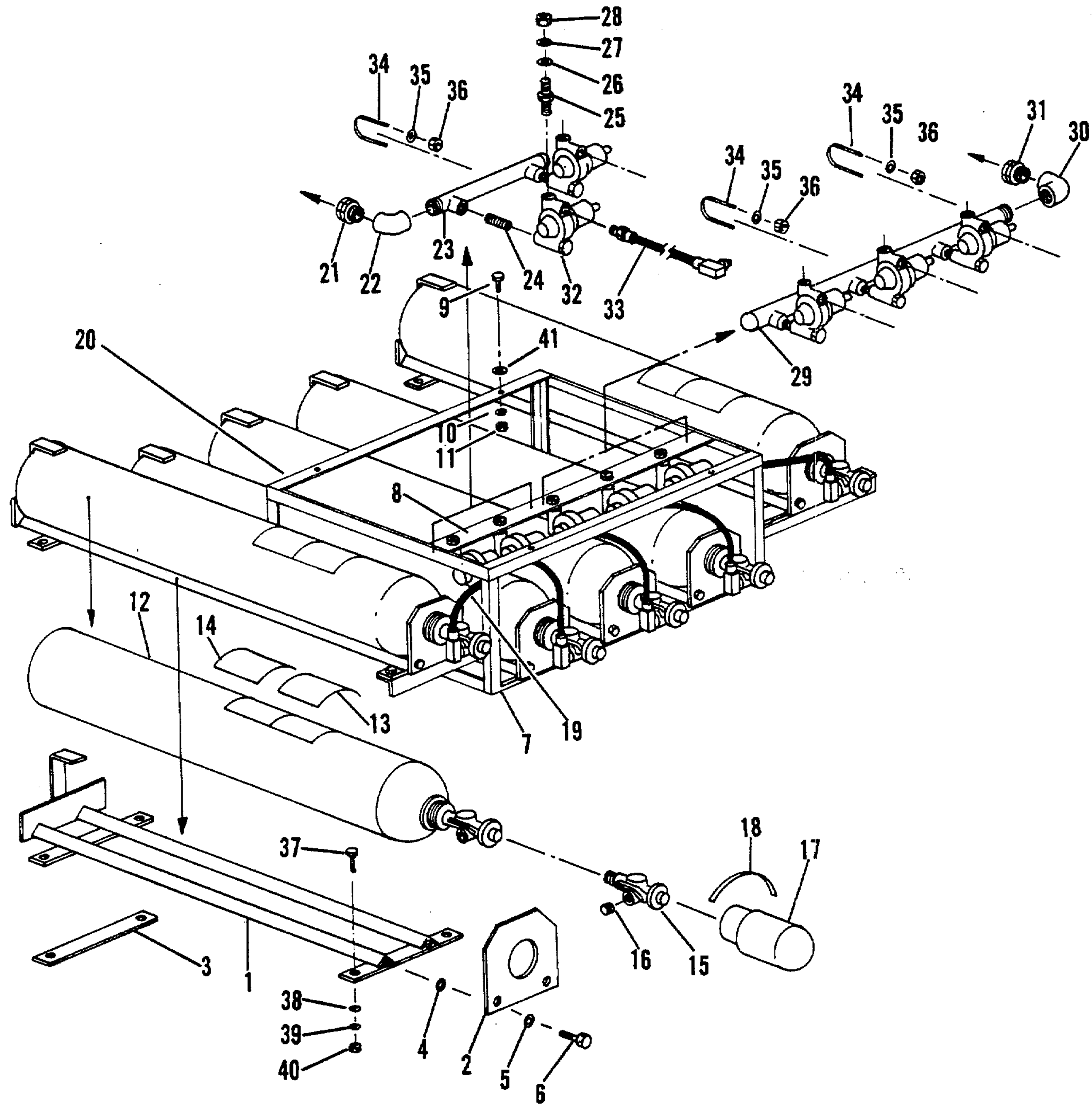
ANSUL AFF TANK LAYOUT



ANSUL AFFF TANK ASSEMBLY

FIGURE NO.	DESCRIPTION	QUANTITY	PART NO.
-	AFFF -200 Tank Assembly	Ref	S-52538
1	Tank Assembly	1	S-50553
2	Fill Cap Assembly (Brass)	1	5829
3	Gasket	1	3461
4	Valve, Connector 3"	1	S-52139
5	Elbow 3/4" x 90 ° (Brass)	2	19833
6	Seal, Visual Inspection	3	15999
7	Ring Pin	3	598
8	Chain, Ring Pin	3	2367
9	Nipple 3" x 3" Lg.	3	19825
10	Valve, Ball 3" (Bronze)	1	12772
11	Tee 3" (Brass)	2	19974
12	Bushing, Reducing 3" x 3/4" (Brass)	1	19858
13	Pipe 3/4" x 10" Lg.	1	19853
14	Elbow, Union 3/4" x 90 ° (Brass)	1	32091
15	Pipe 3/4" x 35"	1	19853
16	Valve, Ball 3/4"	1	10558
17	Bracket, Nameplate	1	19992
18	Screw	4	1901
19	Pipe 3/4" x 9" Lg.	1	19853
20	Pipe 3/4" x 14-1/2" Lg.	1	19853
21	Elbow, Street 3/4" x 90 ° (Brass)	1	19852
22	Tee 3/4" (Brass)	1	19839
23	Nipple 3/4" x 6" Lg.	1	19169
24	Valve, Check	1	19105
25	Nipple, Close 3/4"	1	19116
26	Valve, Safety 1"	1	2018
27	Tee 1" (Brass)	1	19872
28	Nipple, Close 1"	1	19841
29	Bushing, Reducing 1" x 1/2" (Brass)	1	19873
30	Nipple 1/2" x 1-1/2" Lg. (Brass)	1	19836
31	Valve, Ball 1/2"	1	5816
32	Bracket, Nameplate	1	19993
33	Screw, Hex Hd Cap 3/4"-10NC x 2" (S.S.)	4	16554
34	Lockwasher 3/4" (S.S.)	4	16059
35	Nut, Hex 3/4"-10NC (S.S.)	4	16067
36	Washer, Flat 3/4" (S.S.)	4	17227
37	Bushing, Reducing 1" x 3/4" (Brass)	1	19874
38	Elbow 3" x 90 ° (Brass)	1	19826

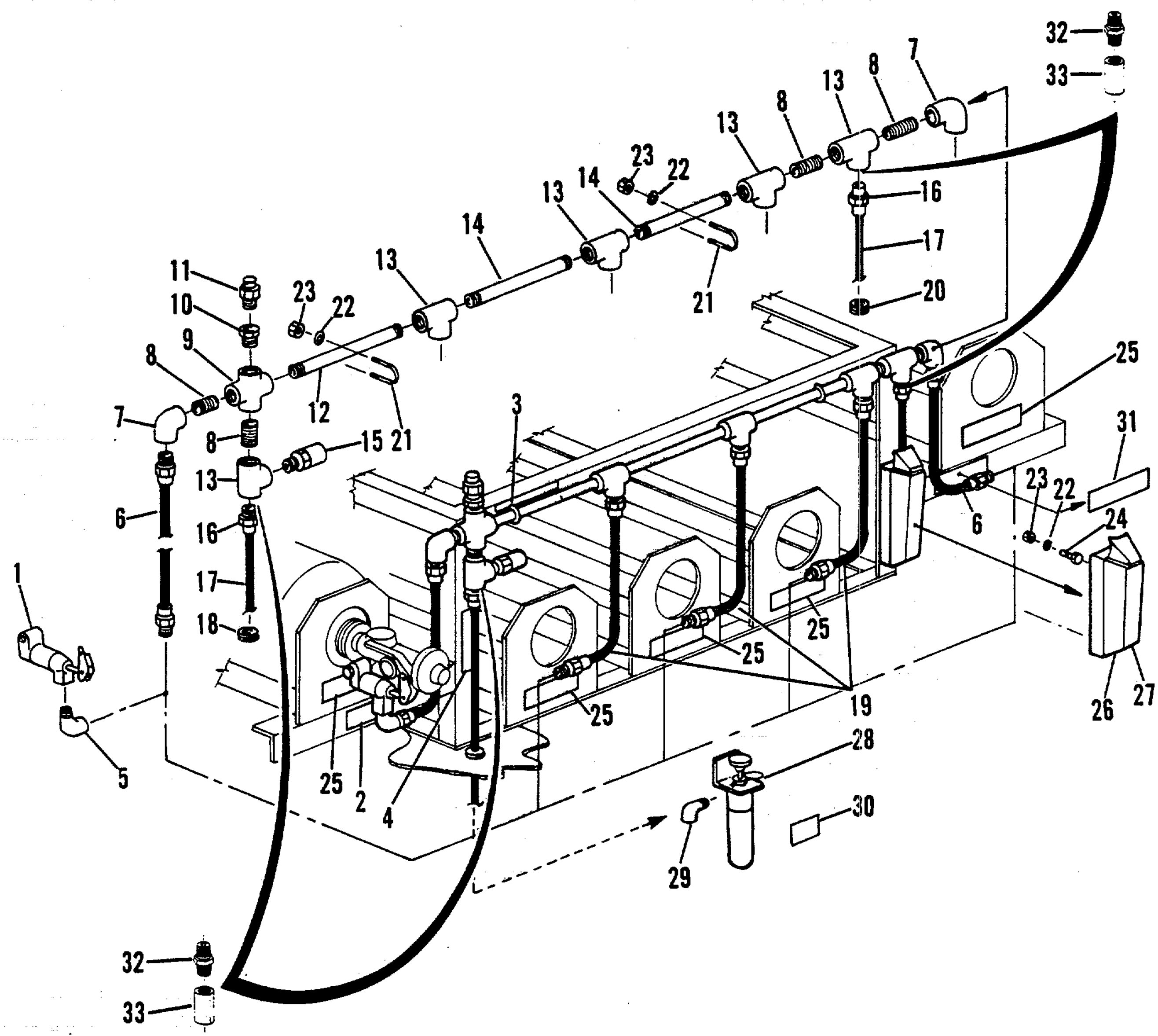
ANSUL CYLINDER PIPING ASSEMBLY



ANSUL CYLINDER PIPING ASSEMBLY

FIGURE NO.	DESCRIPTION	QUANTITY	PART NO.
-	Cylinder Piping Assembly	1	S-52535
1	Nitrogen Cylinder Rack	5	26295
2	End Plate	5	25324
3	Spacer (on 3 center cylinder racks)	3	S-52790
4	Washer, Flat- 3/8" (S.S.)	10	16618
5	Lockwasher - 3/8" (S.S.)	10	14929
6	Screw, Cap, Hex Hd. 3/8"-16NC (S.S.)	10	19124
7	Hose Reel Base	1	S-52789
8	Angle, 2 x 3 x 1/4" (39 LG)	1	8987
9	Bolt, Hex Hd. 3/8"-16NC x 1-1/4" (S.S.)	2	19124
10	Lockwasher, 3/8" (S.S.)	2	14929
11	Nut, Hex - 3/8"-16NC (S.S.)	2	14928
12	Nitrogen Cylinder -400 FT3	5	11200
13	Label	5	10994
14	Label	5	2102
15	Valve, Quick Opening	5	12824
16	Plug, Safety Shipping	5	11453
17	Cap, Shipping	5	11392
18	Label	5	11391
19	Hose and Adapter Assembly	1	7787
20	Angle 2" x 2" x 1/4" (39-1/2" LG)	2	2987
21	Union, Swivel Adapter 3/4"	1	16156
22	Elbow 3/4" x 900 (Brass)	1	19833
23	Manifold, Nitrogen (call Ansul for replacement)	1	
24	Nipple, 3/8" x 1-1/2" (S.S.)	5	19479
25	Stud (S.S.)	5	25590
26	Washer, Flat 1/2" (S.S.)	5	17486
27	Lockwasher 1/2" (S.S.)	5	16121
28	Nut, Hex 1/2"-13 NC (S.S.)	5	16119
29	Manifold, Nitrogen (call Ansul for replacement)	1	
30	Elbow, 1-1/4" x 90° (Brass)	1	16091
31	Union, Swivel Adapter 1-1/4"	1	19609
32	Regulator (Hi-Flow)	5	14798
33	Hose and Adapter Assembly	4	15476
34	U-Bolt 1/4"-20 x 2-1/4" x 1-3/4" (zinc plated)	3	19109
35	Lockwasher 1/4"	6	968
36	Nut, Hex 1/4"	6	545
37	Bolt, Hex Hd, 3/8"-16NC x 2" (S.S.)	20	16515
38	Washer, Flat- 3/8" (S.S.)	20	16118
39	Lockwasher - 3/8" (S.S.)	20	14929
40	Nut, Hex - 3/8"-16 NC (S.S.)	20	14928
41	Washer, Flat - 3/8" (S.S.)	2	16118

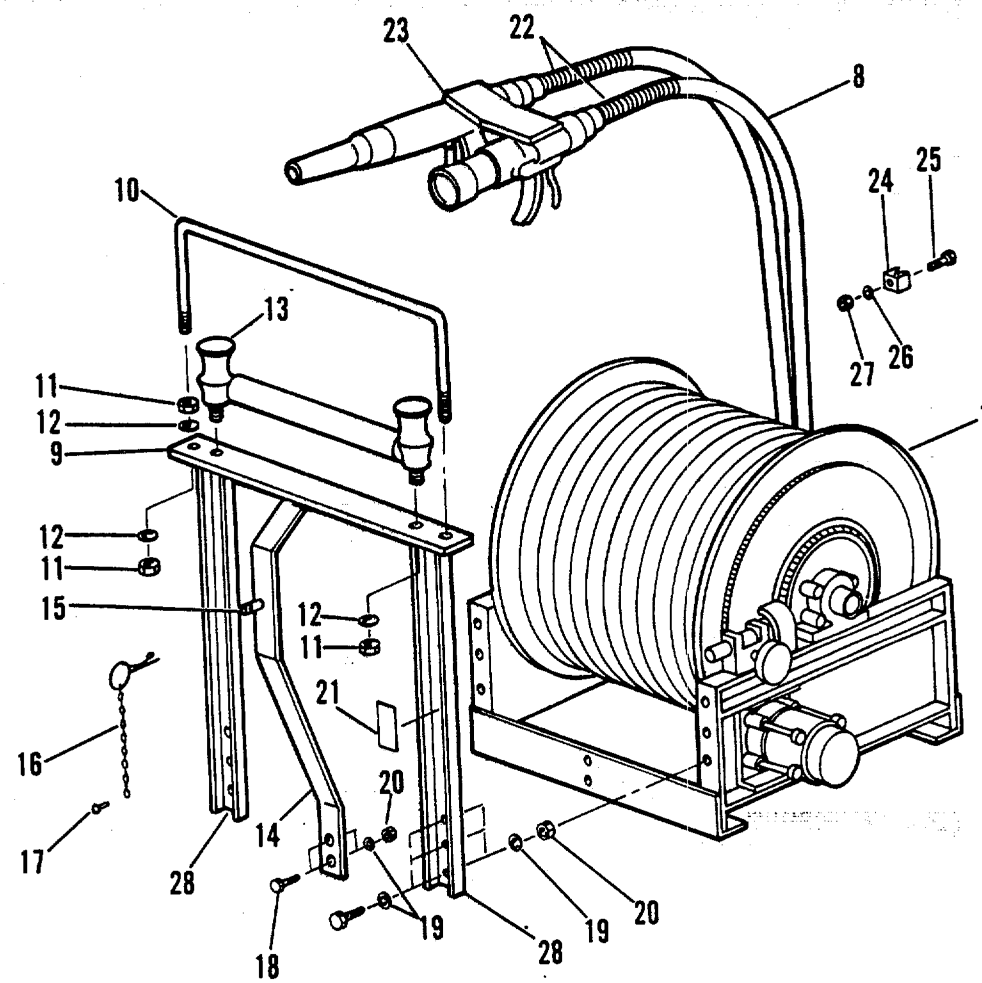
ANSUL ACTUATION PIPING ASSEMBLY

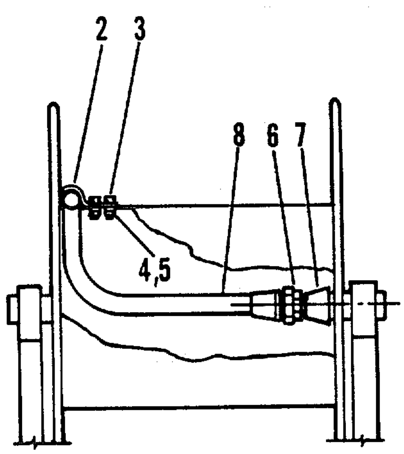


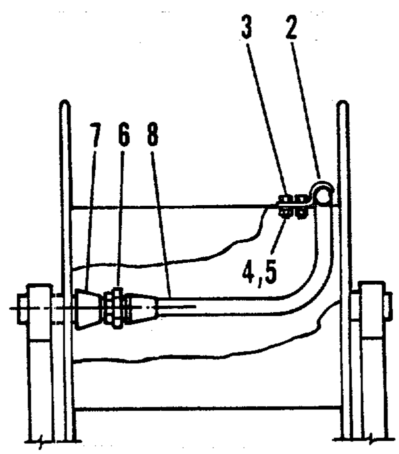
ANSUL ACTUATION PIPING ASSEMBLY

FIGURE NO.	DESCRIPTION	QUANTITY	PART NO.
-	Actuation Piping Assembly	1	S-52539
1	Actuator, Pneumatic Valve	5	11160
2	Nameplate	1	S-52270
3	Nameplate	1	S-52266
4	Nameplate	1	S-52267
5	Elbow, Street 1/8" x 90 °	5	30786
6	Hose (15-1/2" Long)	2	S-52854
7	Elbow, 1/4" x 90 °	2	13331
8	Nipple, 1/4" x 7/8"	4	30784
9	Cross, 1/4"	1	19516
10	Bushing, Reducing 1/4" x 1/8"	1	12793
11	Valve, Poppet 1/8"	1	1732
12	Pipe, 1/4" x 12-1/4" Long	1	2437
13	Tee, 1/4"	5	8292
14	Pipe, 1/4" x 10-1/2" Long	2	2437
15	Valve, Safety Relief, 1/4" (275 PSI)	1	13797
16	Connection, 1/4" Tube x 1/4" NPT	2	16477
17	Tube, Copper, PVC Covered 1/4" x 25'	1	19112
18	Grommet	1	15990
19	Hose (21" Long)	3	S-52856
20	Grommet	1	15989
21	U-Bolt, 1/4"-20 (S.S.)	2	16513
22	Lockwasher 1/4" (S.S.)	6	1133
23	Nut, Hex 1/4"-20 (S.S.)	6	18107
24	Screw, Hex Head 1/4"-20 x 1/2" Lg	2	18105
25	Nameplate	5	S-52269
26	Actuating Device Assembly (L.H.)	1	16186
27	Cartridge Shipping Assembly LT-5-L	2	7013
28	Dashboard Actuator Assembly	1	53195
29	Fitting, 1/4" Tube x 1/8" NPT x 90 °	1	19407
30	Nameplate	1	16151
31	Nameplate, Operating	1	19150
32	Valve, Check, 1/4" (Brass)	2	22522
33	Coupling, 1/4" (Brass)	2	24765

ANSUL HOSE REEL ASSEMBLY







ANSUL HOSE REEL ASSEMBLY

FIGURE NO.	DESCRIPTION	QUANTITY	PART NO.
-	Hose Reel Assembly	1	S-52806
1	Hose Reel Sub-Assembly	1	S-52808
-	Hose Reel Assembly	1	19253
2	Clamp, Hose	2	19686
3	Screw, Phillips Head 1/4-20NC x 3/4" Lg.	4	1132
4	Lockwasher 1/4"	4	968
5	Nut, Hex 1/4"-20NC	4	545
6	Union, Swivel Adaptor	2	16159
7	Coupling, Reducing 1-1/2" x 1"	2	19861
8	Twin Hose Assembly	1	S-29551
9	Bar, Flat Steel 3/8" x 3" x 29" Lg.	1	2396
10	Rod, Aluminum 1/2" x 40-1/2" Lg.	1	19939
11	Nut, Hex 1/2"-13 (S.S.)	6	16119
12	Lockwasher 1/2" (S.S.)	6	16121
13	Hose Roller Assembly	1	17586
14	Bar, Flat Steel 1-1/2" x 1/4" x 33" Lg.	1	2534
15	Rod, Steel 1/2" x 2" Lg.	1	2537
16	Pin, Ring Assembly	1	17753
17	Screw, Drive No. 4 x 1/2" Lg.	1	27857
18	Screw, Hex Head 1/4-20x 1" Lg.	8	16336
19	Lockwasher 1/4-20	8	1133
20	Nut, Hex 1/4-20	8	18107
21	Nameplate	1	19780
22	Protector, Spring Hose	2	17473
23	Twinned Nozzle Assembly	1	S-27763
24	Clip, Crank Handle (2)	1	19428
25	Screw No. 10-24 (2)	1	4135
26	Lockwasher, No. 10 (2)	1	4141
27	Nut, Hex No. 10-24 (2)	1	2666
28	Channel, Steel 2" x 1" x 1/8" x 23" Lg.	2	8940

ANSUL TWINNED NOZZLE ASSEMBLY

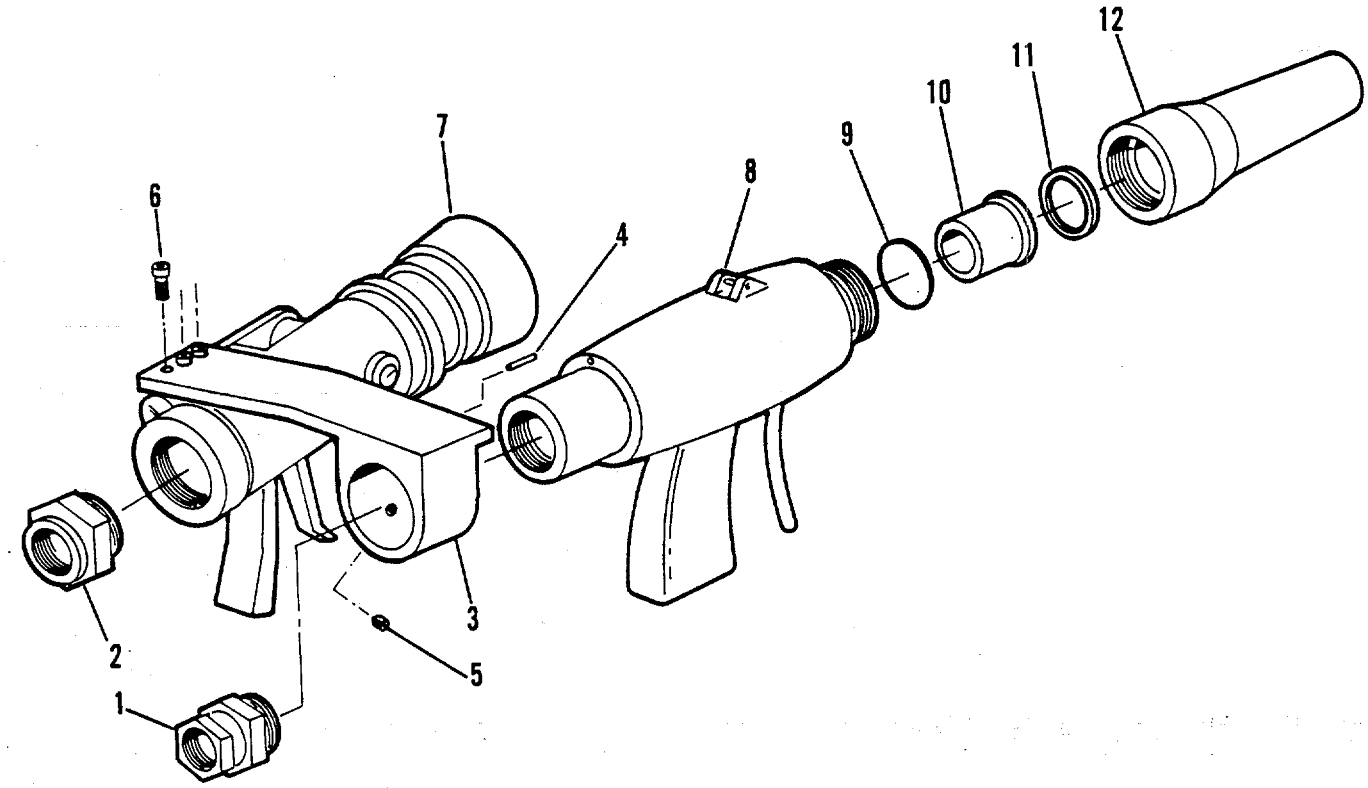


FIGURE NO.	DESCRIPTION	PART NO.
-	Twinned Nozzle Assembly	S-27763
1	Union, Swivel Adaptor 1" Male NPTF X 1" FEMALE NPSM	12531
2	Adaptor 1-1/2" NPSH x 1" NPT	S-27783
3	Bar, Tie	S-27782
4	Pin	5112
5	Screw, Set No. 10-32 NF 2A x 3/16" Lg.	4607
6	Screw 1/4"-20 x 3/4" Lg. (3)	25146
7	AFFF Nozzle Assembly	25501
	Dry Chemical Nozzle Assembly	S-27762
8	Nozzle Assembly	13770
9	"O" Ring	13903
10	Insert	13901
11	Gasket	8105
12	Nozzle Body, LR-44	25907

ANSUL REMOTE ACTUATING DEVICE ASSEMBLY

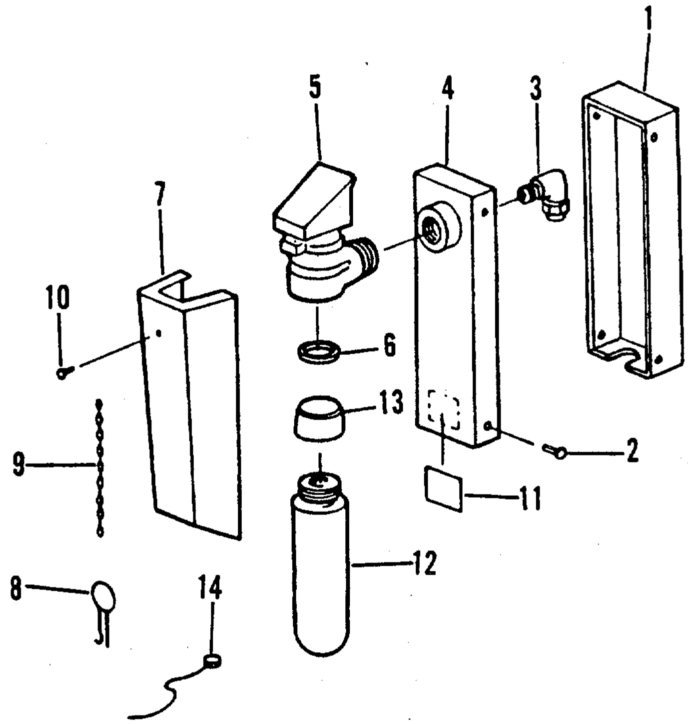


FIGURE NO.	DESCRIPTION	PART NO.
-	Actuator, Remote, Shipping Assembly	32747
-	Device, Actuating, Assembly	16186
1	Box, Mounting	32750
2	Screw, Sheet Metal (4)	19364
3	Fitting, Tube	19407
4	Cover	32749
5	Receiver, Cartridge, Assembly	32763
6	Gasket	181
-	Guard, Cartridge, Assembly	32748
7	Guard, Cartridge	19406
-	Ring Pin & Chain Assembly	7095*
8	Pin, Ring	7066*
9	Chain, Ring Pin	507*
10	Rivet	6579*
11	Label	32759
-	Cartridge, Nitrogen, Shipping Assembly -	7013
12	Cartridge, Nitrogen	24380
13	Cap, Safety Shipping	1188
14	Seal, Visual Inspection	15999

*Not included with Cartridge Guard Assembly; included with Actuating Device Assembly or Separately.

**ANSUL QUICK-OPENING NITROGEN CYLINDER VALVE
WITH PNEUMATIC VALVE ACTUATOR**

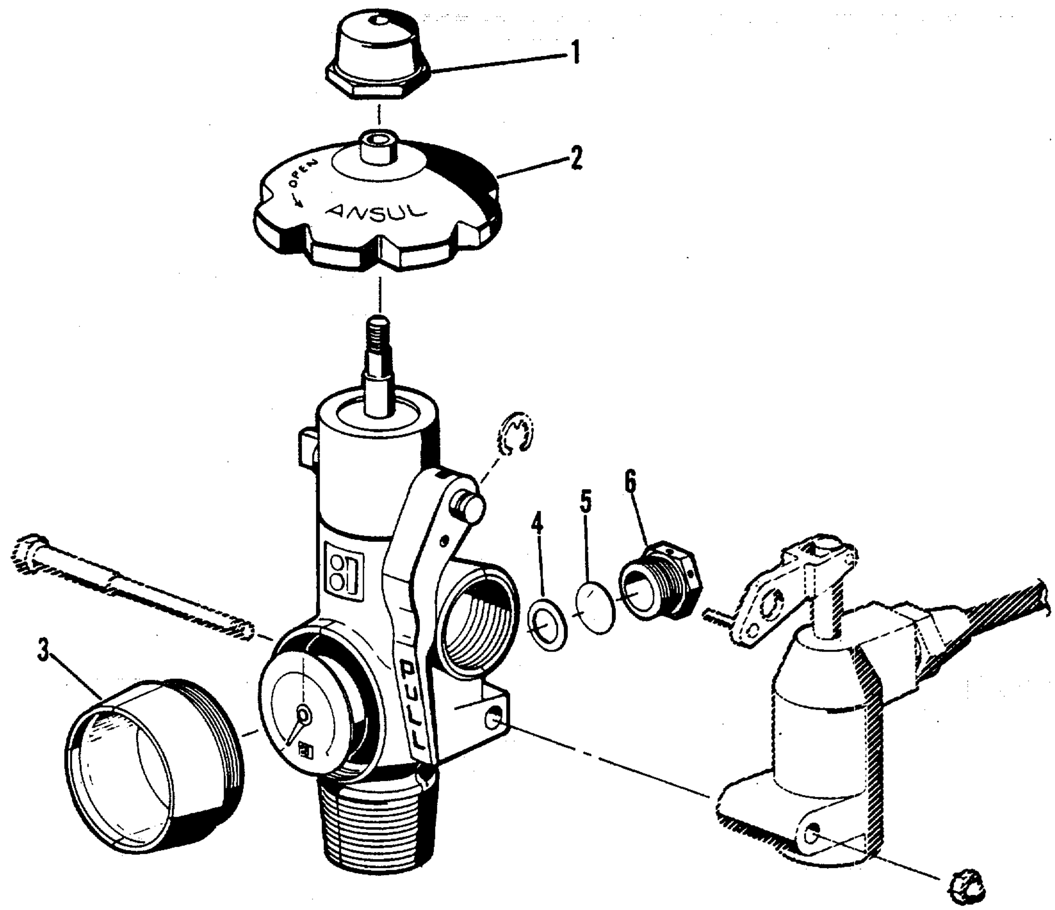


FIGURE NO.	DESCRIPTION	PART NO.
-	Valve Assembly	12824
1	Nut, Handwheel	3394
2	Handwheel	12829
3	Bezel and Crystal Assembly	3459
4	Washer	*
5	Disc*	7486
6	Plug	**
7	Plug, Safety Shipping (Not Shown)	11453
8	Inspection Seal, Lead and Wire (Not Shown)	197

*New washer, Part No. 4297, is required when replacing disc, Part No. 7486.
**Available on request, specify cylinder model.

ANSUL PNEUMATIC VALVE ACTUATOR

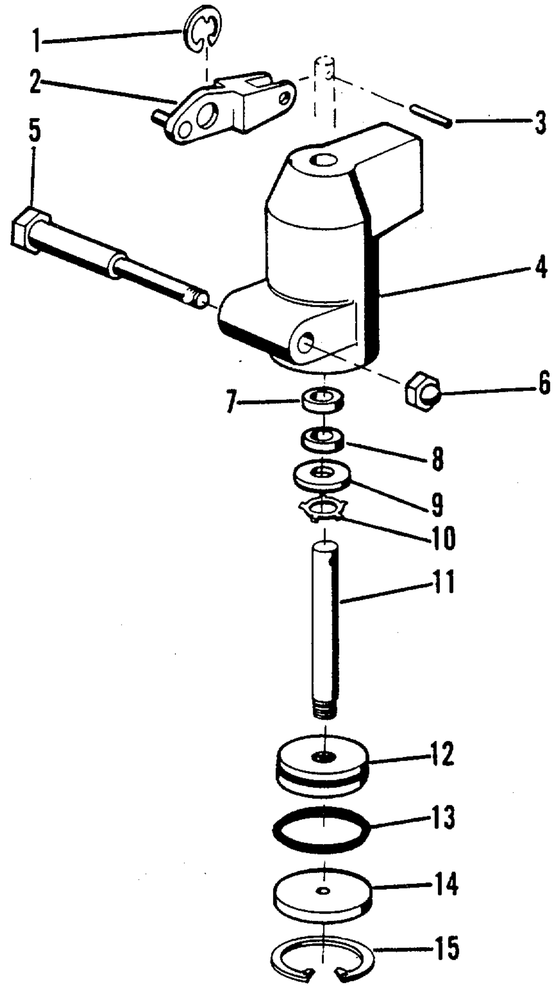
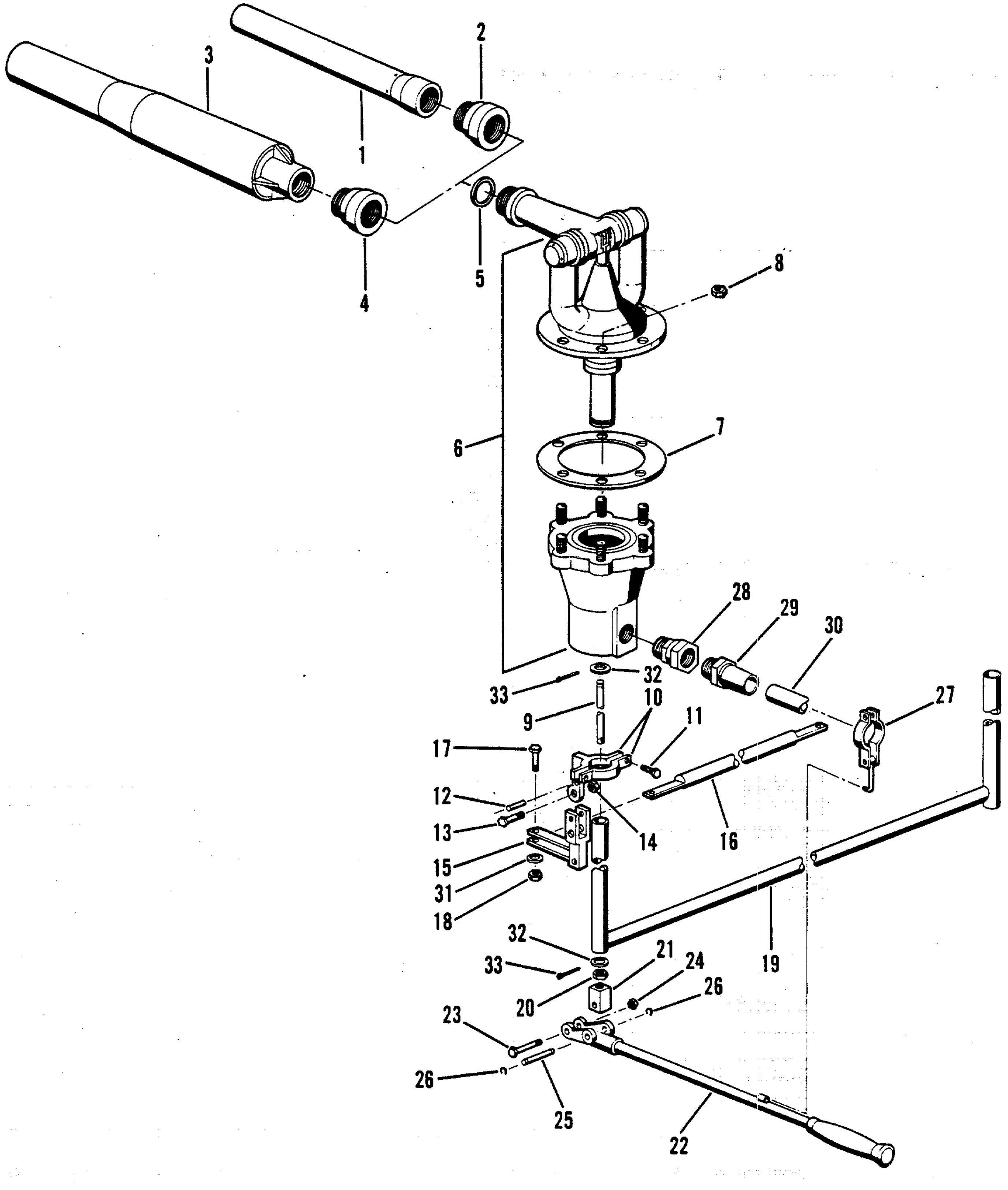


FIGURE NO.	DESCRIPTION	PART NO.
-	Q.O. Valve Actuator Assembly	11160
1	Crescent Ring	11322
2	Actuator Arm	11389
3	Roll Pin	11172
4	Actuator Body	11161
5	Anchor Stud	11171
6	Cap Nut	11173
7	Bushing	6354
8	Quad Ring	5361
9	Bushing	1238
10	Retaining Ring	6355
11	Piston Rod	11301
12	Piston	11300
13	O-Ring	5151
14	End Plug	11163
15	Retaining Ring	11302

ANSUL TWIN TURRET ASSEMBLY

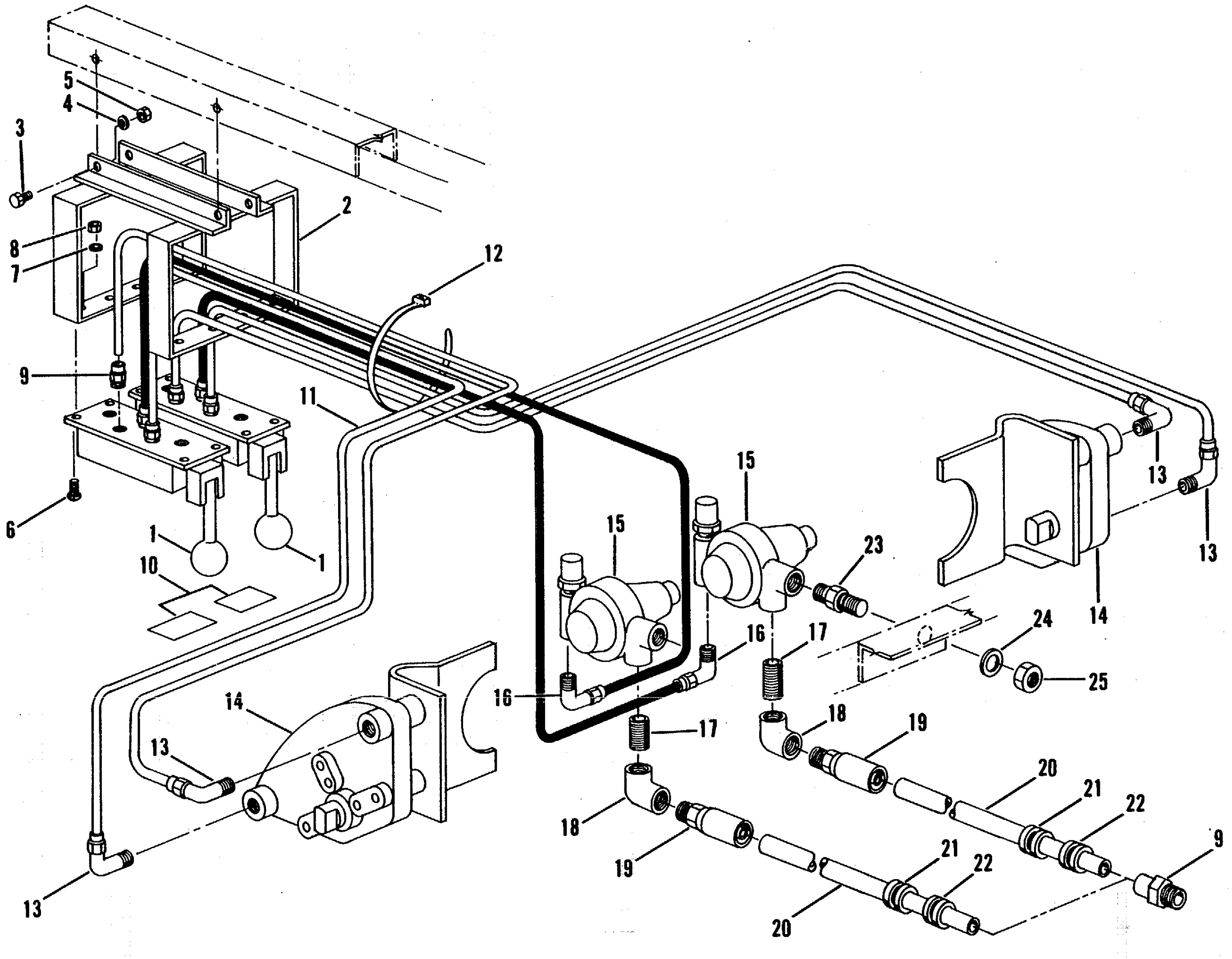


ANSUL TWIN TURRET ASSEMBLY

FIGURE - NO.	DESCRIPTION	PART NO.
-	Twin Turret Assembly	S-52797
1	Dry Chemical Barrel	14035
2	Adapter	19559
3	AFFF Barrel	19444
4	Adapter	19558
5	O-Ring (2)	19557
6	Turret Assembly w/o Barrel (2)	19621*
7	Gasket (2)	10-02975*
8	Nut (2)	1-61-10009*
9	Elevation, Rod (2)	19664
10	Clevis Hanger Assembly (2)	10-04555*
11	Cap Screw (4)	1-52-05018*
12	Roll Pin (2)	4108
13	Cap Screw, 5/16" (2)	12364
14	Nut, 5/16" (2)	4514
15	Adapter Yoke (2)	19661
16	Horizontal Tie Bar	19662
17	Shoulder Screw (2)	19765
18	Nut, 1/4" (2)	545
19	Vertical Tie Rod	19663
20	Nut, 1/2", S.S. (2)	16119
21	Elevation Rod Connector (2)	10-04543*
22	Lower Handle (2)	10-04542*
23	Cap Screw (2)	1-52-05041
24	Stop Nut (2)	1-61-05005'^
25	Connector Pin (2)	10-04545*
26	E-Ring (4)	1-85-03140'"
27	Handle Latch Assembly (2)	10-04547*
28	Union, Swivel Adapter (2)	19576
29	Hose Coupling, 2" Male NPTF (2)	19577
30	Hose, 1-13/16" ID (Specify Length) (2)	19579
31	Lockwasher 1/4" (2)	968
32	Flatwasher 1/2" (4)	160
33	Cotter Pin 1/8" x 1-1/4" (4)	19620

*Parts supplied by FSCM 52659.

ANSUL HAND VALVE AND PNEUMATIC ACTUATOR



ANSUL HAND VALVE AND PNEUMATIC ACTUATOR

FIGURE NO.	DESCRIPTION	QUANTITY	PART NO.
-	Hand Valve and Pneumatic Actuator Assembly	Ref	S-52798
1	Valve, Hand Lever	2	25054
2	Frame, Hand Valve	1	19729
3	Bolt, Hex Hd 1/4"-20NC x 3/4"	4	4065
4	Lockwasher, 1/4"	4	968
5	Nut, Hex 1/4"-20NC	4	545
6	Screw, No. 10-24x 1"	8	4135
7	Lockwasher, No. 10	8	4141
8	Nut, Hex No. 10-24	8	2666
9	Connector, 1/4" x 1/4"	8	19982
10	Nameplate, Hand Valve	2	16460
11	Tube, Black Nylon 1/4" O.D. (Lg. as required)	6	19985
12	Tie, Cable Sta-Strap	4	19897
13	Elbow, Male 1/4" O.D. Tube x 1/4" NPT Ex. Lg.	4	19185
14	Actuator, Ball Valve	2	29347
15	Regulator, Pressure	2	19599
16	Elbow, 1/4" NPT x 1/4" O.D. Tube	2	16145
17	Nipple, Close	2	30784
18	Elbow, 1/4"	2	13331
19	Coupling, Quick 1/4"	2	27519
20	Hose, High Pressure 1/4" (Lg. as required)	2	27517
21	Grommet	2	15990
22	Grommet	2	15989
23	Stud	2	8762
24	Lockwasher, 1/2"	2	957
25	Nut, Hex 1/2"-13NC	2	2124

ANSUL DASHBOARD ACTUATOR ASSEMBLY

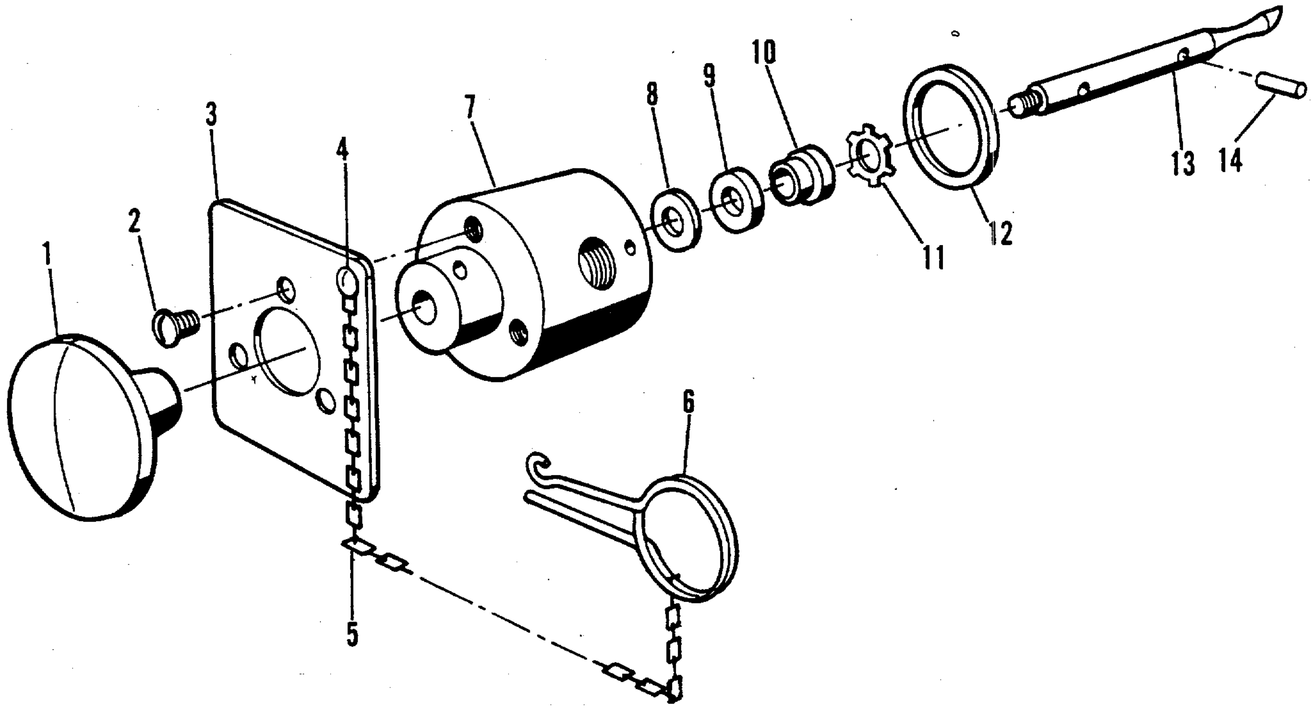


FIGURE NO.	DESCRIPTION	QUANTITY	PART NO.
-	Actuator, Dashboard Assembly	1	53195
1	Knob, Push	1	16470
2	Screw, Machine	3	17556
-	Plate, Face Assembly	1	17252
3	Plate, Face	1	17245
4	Rivet	1	6579
5	Chain, Ring Pin	1	507
6	Pin, Ring	1	32342
-	Actuator, Remote Assembly	1	17242
7	Body, Actuator	1	17243
8	Bushing	1	1238
9	U-Cup	1	17229
10	Guide, Pin	1	25465
11	Ring, Retaining	1	1239
12	Gasket	1	181
-	Pin, Puncture Assembly	1	53032
13	Pin, Puncture	1	19415
14	Pin, Spring	1	22440
-	Cartridge, Nitrogen, Shipping Assembly*	1	7013
-	Cartridge, LT-5-L*	1	24380
-	Cap, Safety Shipping*	1	1188
-	Seal, Visual Inspection (Not Shown)	1	15999

*Not included with actuator assembly; order separately.

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1-52-P5041	8-23	23		
1-61-05005	8-23	24		
1-61-10009	8-23	8		
1-85-03140	8-23	26		
10-02975	8-23	7		
10-04542	8-23	22		
10-04543	8-23	21		
10-04545	8-23	25		
10-04547	8-23	27		
10-04555	8-23	10		
10558	8-11	16	01029	TYPE 3/4-A-MOD-BIITT
10935	8- 9	20		
10994	8-13	13		
11160	8-15	1		
11160	8-21			
11161	8-21	4		
11163	8-21	14		
11171	8-21	5		
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11173	8-21	6		
11200	8-13	12		
11300	8-21	12		
11301	8-21	11		
11302	8-21	15		
1132	8-17	3		
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1133	8-17	19		
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12531	8-18	1		
12549	8- 6	44		
12743	8- 9	30		
12744	8- 5	3		
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133331	8-25	18		
13336	E- 9	23		
13363	8- 9			
13770	8-18	8		
13797	8-15	15	06023 3127,	TYPE H
13901	8-18	10		
13903	8-18	9		
14035	8-23	1		
14206	8- 6	57		
14232	8- 5	9		
14235	8- 5	17		
14316	8- 7			
14617	8- 5	28		
14626	8- 5	11		
14732	8- 5	18		
14798	8-13	32		
14928	8- 6	66		
14928	8-13	11		
14928	8-13	40		
14929	8- 6	65		
14929	8-13	5		
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15053	8- 9	16		
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15999	8- 9	14		
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16159	8-17	6		
16186	8-15	26		
16186	8-19			
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16279	8- 9	4		
16282	8- 5	26		
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t19780	8-17	21		
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1982 6	8 -11	38		
1 9829	8- 5	38		
19830	8- 5	39		
19833	8-11	5		
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19852	8-11	21		
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19857	8- 5	3-4		
19858	8-11	1.2		
19861	8-17	7		
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2367	8- 9	13		
2367	8-11	8		
2396	8-17	9		
?437	8-15	12		
2437	8-15	14		
24380	8-19	12		
24380	8-26			
2462	8- 9	19		
2462	8- 9	21		
2462	8- 9	22		
24765	8-15	33		
25054	8-25	1		
25146	8-18	6		
25324	8-13	2		
2534	8-17	14		
2537	8-17	15		
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25604	8- 6	59		
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2666	8-17	27		
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27517	8-25	20		
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27857	8-17	17		
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29345	8- 5	19		
29347	8- 5	21		
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2987	8- 6	80		
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32759	8-19	11		
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3394	8-20	1		
3459	8-20	3		
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51187	8- 9	32		
5151	8-21	13		
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6579	8-26	4		
7013	8-15	27		
7013	8-19			
7013	8-26			
7066	8-19	8		
7095	8-19			
7486	8-20	5		
7787	8-13	19		
8105	8-18	11		
8284	8- 5	4		
8292	8-15	13		
8762	8-25	23		
8940	8-17	28		
8987	8-13	8		
957	8-25	24		
968	8- 5	12		
968	8-13	35		
968	8-17	4		
968	8-23	31		
968	8-25	4		

APPENDIX

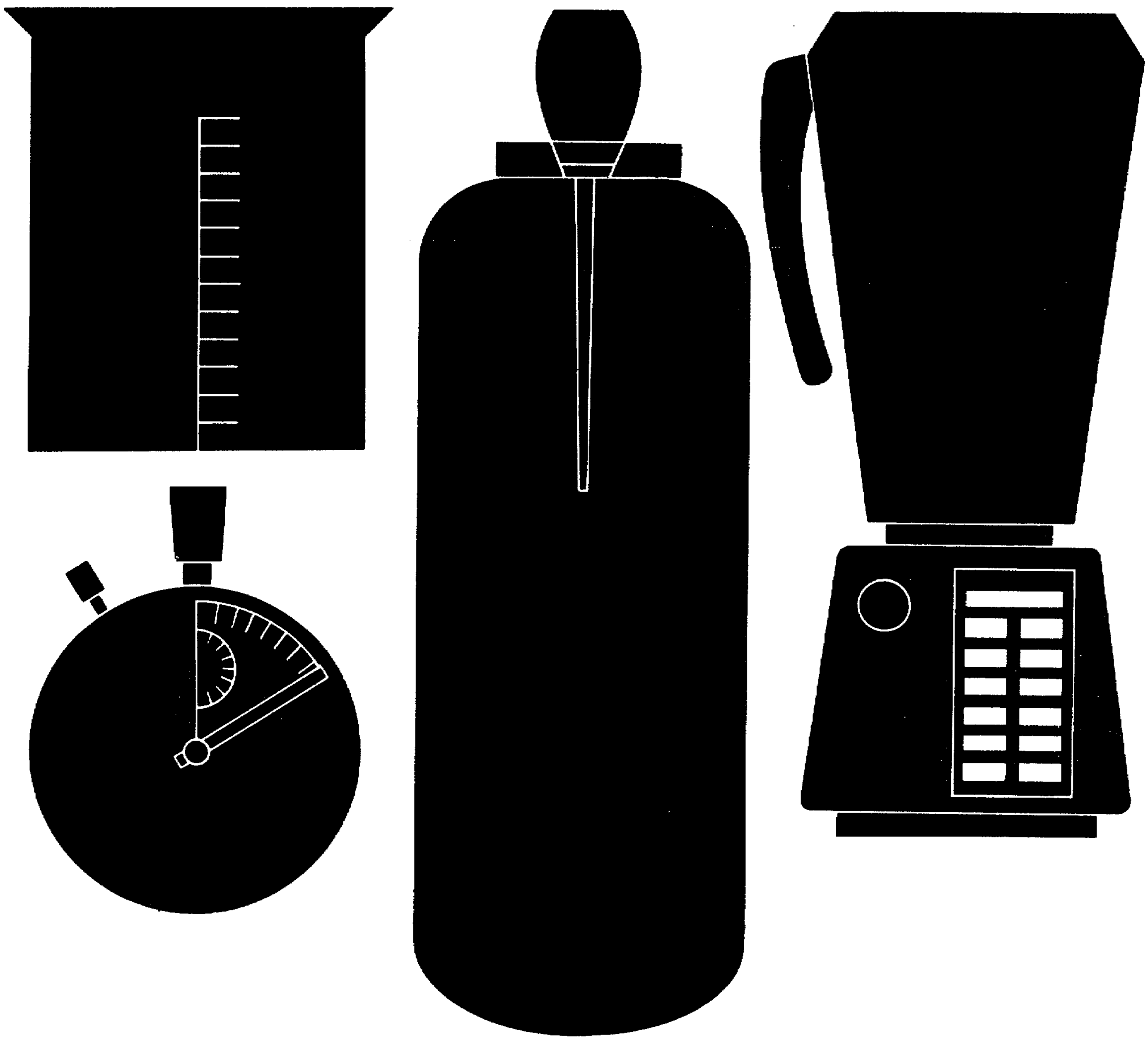
The appendix contains the following:

ANSUL AFFF FIELD INSPECTION MANUAL

ANSUL

FIELD INSPECTION MANUAL

ANSULITE™ AFFF (AQUEOUS FILM-FORMING FOAM)



This manual is designed to serve as a guide to inspection procedures for ANSULITE concentrates and premix solutions. ANSULITE concentrates are available as 1%, 3%, 3% freeze-protected, 6% and ARC 3 or 6%.

The designated inspector should be a responsible and experienced person with a sound, basic knowledge of fire equipment hardware and extinguishing agents. A thorough briefing on the procedures to be followed should include the need for precise execution of each step in each test.

Any deviation from the indicated results of a given test may mean that the solution must be replaced. If there is any doubt, contact your Ansul representative.

A sample form is included within this booklet for use in recording ANSULITE AFFF test-results. Note that the form calls for initial test data. **This information is important and required as a reference point for future tests.**

Frequency And Accuracy Of Tests

Separate tests are required for the concentration and premix solution of ANSULITE AFFF. Ansul recommends that premix solutions be inspected annually and that the concentrates be inspected once every five years. If you should question the quality of your ANSULITE AFFF due to improper mixing, storage, etc., the tests should be performed more frequently.

Most of the tests require that certain properties, such as refractive index, expansion ratio, etc., be measured and compared with acceptable values. To minimize small. variations in the results, it is recommended that all tests, except for Quality of Sample, be performed in triplicate and that the results be averaged. This average value is then compared, with the recommended values contained in this manual .

Storage Conditions

ANSUL recommends that its ANSULITE AFFF concentrate and premixed solutions be stored at the temperatures indicated below in Table 1.

Tests have been conducted with the concentrate and premix solutions stored at 150° F (65.50 C) with no adverse effect. However, the Underwriters Laboratories Standard No. 162 requires that the maximum storage temperature be listed at 120° F (48.9° C).

Storage of the concentrates below 35° F (1.7° C) could result in freezing of the agent except for ANSULITE 3% F.P. Should the agent freeze, it should be thawed at or near room temperature and then agitated or stirred to ensure that the concentrate is a homogeneous solution. Should you suspect the agent was frozen in the past, agitation will again ensure a homogeneous solution.

ANSULITE AFFF Concentrate-(Test Procedures Found on Pages 3 -7)

The concentrate as received from Ansul may be stored in the original container or in a concentrate tank, at the temperatures indicated in Table 1. Ansul recommends that the ANSULITE AFFF concentrate be tested once every five years or more frequently if adverse storage conditions exist.

The testing as described in this manual consists of verifying the ANSULITE AFFF concentrates conform to the requirements listed in Table 2.

TABLE 2
Appearance and Refractive Index of ANSULITE AFFF

Concentrates		
ANSULITE 6%	Clear Colorless Liquid	1.3580-1.3620
ANSULITE 3%	Clear Pale Yellow Liquid	1.3510-1.3650
ANSULITE 3% F.P	Clear Colorless Liquid	1.3994 -1.4030
ANSULITE 3%16% ARC	Clear Pale Yellow Gelled Liquid	1.2570-1.3630
ANSULITE 1%	Clear Pale Yellow Liquid	1.3991-1.4051

Typical refractive index versus concentration curves are shown in Figures 1 thru 5 for the various ANSULITE AFFF products.

TABLE 1
Storage Temperature Ranges for ANSULITE AFFF Concentrates and Premixed Solutions

	Concentrate Form		Premixed Solution Form	
Product	Maximum	Minimum	Maximum	Minimum
ANSULITE 6%	120° F (48.9° C)	35° F (1.7° C)	120° F (48.9° C)	35° F (1.7° C)
ANSULITE 3%	120° F (48.9° C)	35° F (1.7° C)	120° F (48.9° C)	35° F (1.7° C)
ANSULITE 3% F.P.	120° F (48.9° C)	−20° F (28.9° C)	120° F (48.9° C)	35° F (1.7° C)
ANSULITE 3%/6% ARC	120° F (48.9° C)	35° F (1.7° C)	120° F (48.9° C)	35° F (1.7° C)
ANSULITE 1%	120° F (48.9° C)	35° F (1.7° C)	120° F (48.9° C)	35° F (1.7° C)

Typical ANSULITE 1% AFFF in Hydrant H20
Refractive Index of Concentrate = 1.4021 ± 0.0005

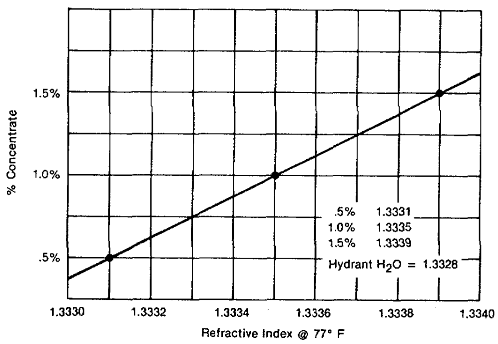


FIGURE 1

Typical ANSULITE ARC AFFF in Hydrant H20

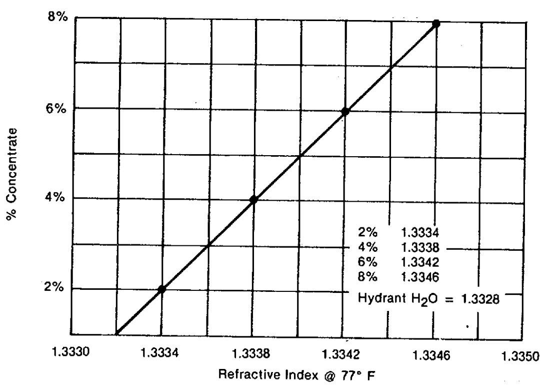


FIGURE 2

ANSULITE 3% Freeze-Protected AFFF in Hydrant H20

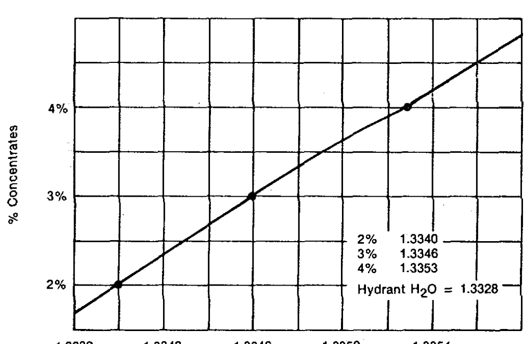


FIGURE 3

ANSULITE 3% AFFF in Hydrant H20

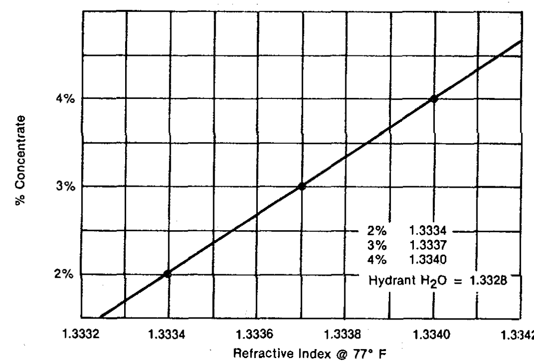


FIGURE 4

ANSULITE 6% AFFF in Hydrant H20

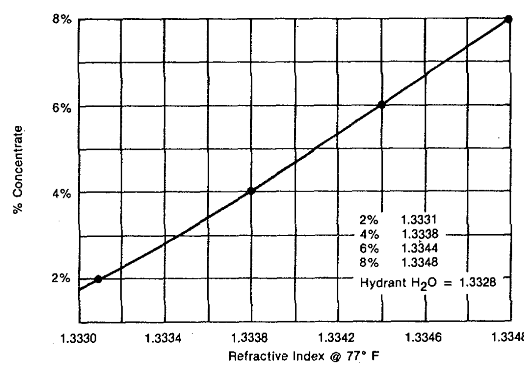


FIGURE 5

ANSULITE AFFF Premix Solution- (Test Procedures Found on Pages 7-11)

As with the concentrate, the premix solution should be stored at temperatures of 35° F (1.7° C) or 120° F (48.9° C). When the premix solution is originally formulated, a sample of the water should be taken and observed for residue. Let the water stand in its container for 5 minutes and then record the amount and appearance of any residue on the inspection sheet to avoid unnecessary concern during future premix inspections. You should also measure and record the initial refractive index of the premix solution as described on Page 9 of this manual.

Ansul recommends that the ANSULITE AFFF premix be tested annually or more frequently if adverse storage conditions exist. These tests consist of observing the appearance and measuring the concentration, sealability and expansion ratio of the premix. Observe all instructions carefully when performing the tests.

Ansul recommends that ANSULITE AFFF concentrate be inspected every five years. should the quality of the ANSULITE AFFF concentrate be questioned for any reason (improper mixing, sediment, improper storage, temperatures, etc.) it is recommended that the tests be performed immediately. An Inspection Sheet (Ansul Form No. F-7880) is available for recording all test data.

Initial Inspection
When first putting the ANSULITE AFFF concentrate into service, it is recommended that the following be recorded:
1. Concentrate Refractive Index
2. Quality of Concentrate Sample
3. Lot or Batch Number of the Concentrate

Initially the refractive index of the concentrate should be measured. The procedure is described on Page 4 of this manual. By submitting the concentrate's batch number to Ansul Fire Protection, the initial refractive index can be obtained. Determination of the Quality of Concentration Sample is described on Page 3. Both of the above test results should be recorded on the inspection sheet.

Periodic Inspection
As described on Pages 3-5, the periodic inspections will involve the following tests:
1. Quality of Sample
2. Measurement of Refractive Index

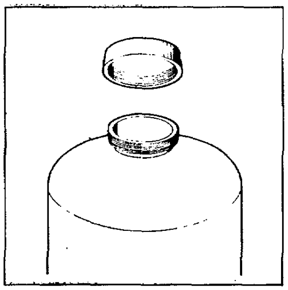
If the concentrate successfully passes these two tests, it is acceptable. Should the sample fail either of these two tests, Ansul then recommends that the following tests be performed to ensure the sample is acceptable (Pages 5-7).

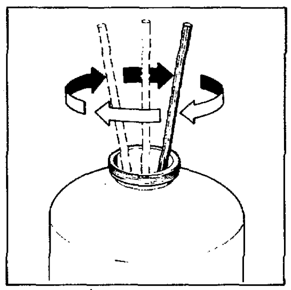
1. Measurement of Film Formation and Sealability
2. Measurement of Expansion

ANSULITE AFFF Concentrate

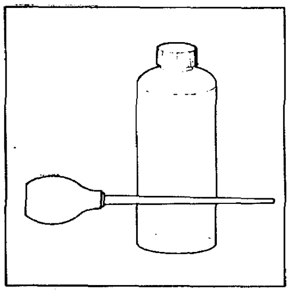
Quality of Sample

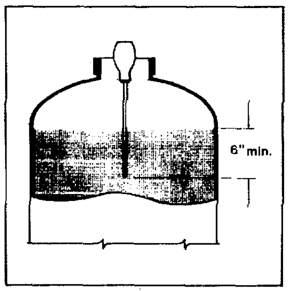
1. Remove lid from ANSULITE AFFF concentrate container.
2. Stir solution vigorously for 30 seconds using a non metallic rod, or shake container.



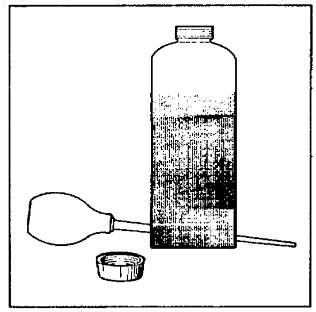


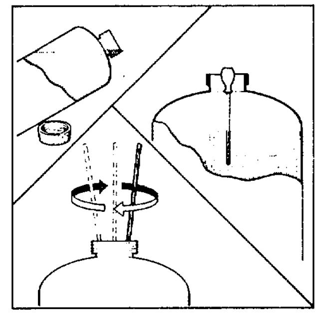
3. Use only clean, dry apparatus to extract and contain solution sample. If doubtful, clean apparatus with detergent (Alconox), rinse well and dry.
4. Extract a small amount' of liquid from a depth of at least 6 inches (15.2 cm) below liquid level and replace container lid.





Quality of Sample (Continued)

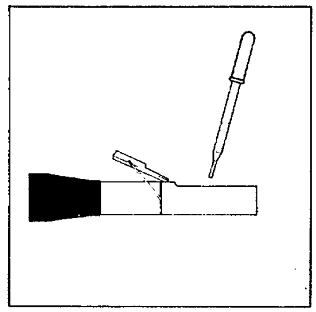


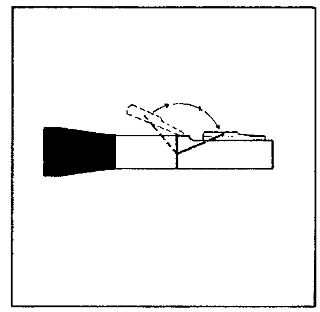


5. Let the sample sit for about five minutes, then examine for stratification, sediment, or sludge. If more than 1% by volume of sediment or sludge is found, it may be necessary to replace the concentrate.

6. If the sample evidences unacceptable levels of sludge or sediment in Step 5, return to the concentrate container and repeat Steps 2 through 5 to verify your findings. Continue with the Test Procedures which follow.

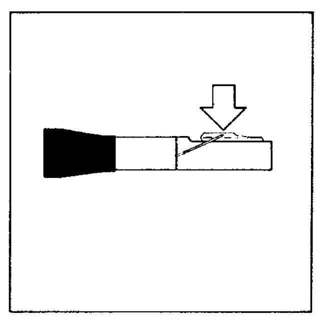
Measurement of Refractive Index* This test should be performed three times, with the result averaged to obtain the figure for the Field Inspection Record entry.

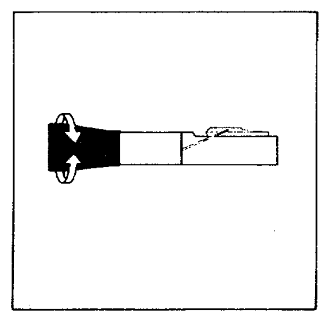




1. Hold your TS Meter** in a horizontal position, swing the cover plate over the body of the instrument to expose both the prism and the cover plate surface (clean if required) and place a small concentrate sample on the measuring prism. NOTE: Use a plastic pipette to minimize the possibility of scratching the prism surface by the contact with the pipette tip.

2. Swing (close) the cover plate over the measuring prism without delay to assure minimum evaporation. CAUTION: Take care to: avoid lifting the cover plate before the reading is made. Care must be taken to avoid air bubbles when placing. sample on the refractometer prism.





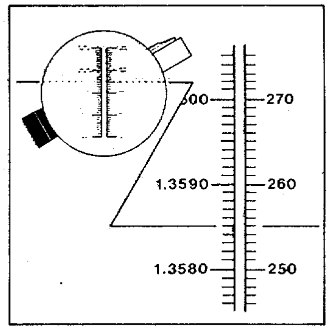
3. To hold the instrument for reading, place middle finger on nameplate and press the plastic cover gently but firmly to spread a minimal volume of sample in a thin, even layer over the prism. Expose it to an illuminating source such as a fluorescent or incandescent lamp or full sunlight. NOTE: To obtain the optimum contrast between light and dark boundary, the instrument may have to be properly tilted with respect to the lamp.

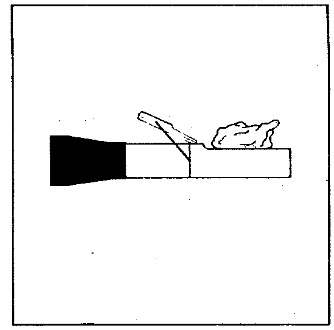
4. Bring the scale seen in the eyepiece into best focus by rotation of the eyepiece. NOTE: This setting need not be changed as long as the same individual continues to use the instrument. Make the reading on the appropriate scale at the point where the dividing line between bright and dark fields crosses the scale. The average value obtained from three tests must be within + 0.15% of the initial refractive index.

*This procedure is essentially identical to that given in "Instructions for Use and Care of the AO TS Meter and Concentrimeter" by the American Optical Corporation, Scientific Instrument Division, Buffalo, New York, 14215. The TS meter is available from scientific supply companies such as Rascher-Betzold or Curtin Scientific at a cost of about $500.

**The TS meter is compensated to give correct readings directly on aqueous solutions at all temperatures ranging from 60" F to 100° F (15.A° ,,to. 7.8° C).

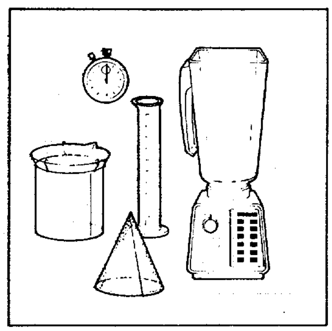
5. Use a soft cloth or soft tissue (moisten one end with lukewarm water) for wiping the prism clean and dry. If the prism surface or cover plate is not well cleaned before the next sample is loaded, an erroneous or fuzzy reading may result. **CAUTION**: Do not immerse the eyepiece of the black focusing ring in water. Never use gritty cleaning compounds to clean the prism and never expose the instrument to temperatures above 150° F (65.6° C).

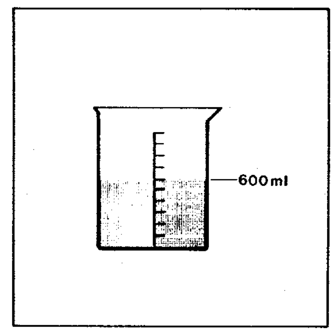




6. If the Quality of Sample and the Refractive Index Tests are okay, no further tests are needed. However, questionable results on either test indicate that the concentrate may not be acceptable. If the concentrate fails either of the above two tests, it is necessary to measure the film formation, sealability and expansion ratio as described in the following sections. If the concentrate passes these additional tests, it is acceptable and need not be replaced.

Measurement of Film Formation and Sealability Quality*
It is not necessary to perform this test unless irregularities are encountered in the Quality of Sample or Measurement of % Concentration Tests.

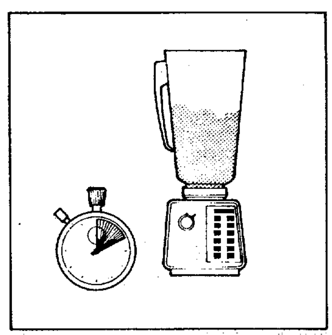


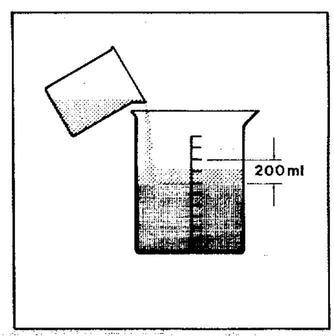


1. You will need an automatic blender for use as a test foam maker (at 700 ± 50 F or 240 C ± 20 C); an 80-mesh conical screen or corrosion-resisting steel (5 inches (15.2 cm) in height by 43/4 inches (12.1 cm) in diameter); a corrosion-resisting 1000 ml graduated measure (41/2 inches (11.4 cm) in diameter, 5 inches (15.2 cm) deep) with small metal clips fitted at the top edge to restrain the screen from floating out of the container during the test; a corrosion-resisting 100 ml graduated measure, a stopwatch; and a flame source (see Step No. 6). In lieu of the blender to generate a foam sample, a small sample of foam can be discharged through the system's foam nozzle.

2. Pour a carefully measured 600 ml of 98 per cent cyclohexane into the 1000 ml capacity graduated measure.

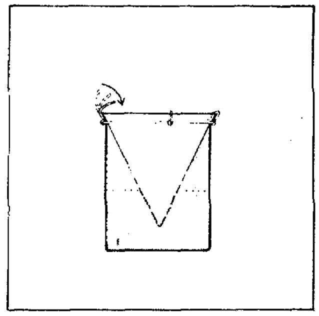
3. Prepare a premix solution from the concentrate and place a 100 ml sample in the blender. Run the blender at low speed for about 10 seconds to generate foam or generate the foam sample by discharging a small amount of solution from the system's nozzle.
4. Pour 200 ml of this foam onto the fuel surface.

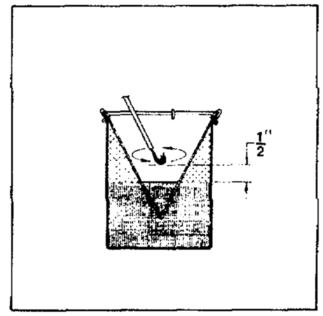




Measurement of Film Formation and Sealability Quality (Continued)

5. Insert the screen into the measure, clip firmly into - place and start your stopwatch.
6. After 1 minute of elapsed time, pass a small 1-inch (2.5 cm) long flame several times around the fuel surface at a height of 1/2 inch (± 1/8 inch). A small flash may occur but no sustained ignition shall result if an effective vapor-seal is present. Sustained ignition means the solution should be replaced. **NOTE**: A handheld propane tank with a capillary tubing outlet and adjustment valve will readily provide a 1-inch long pilot flame.



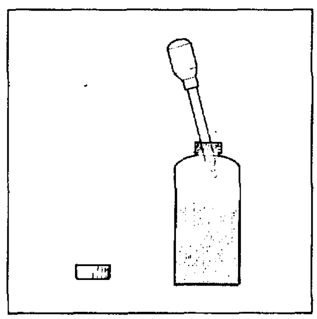


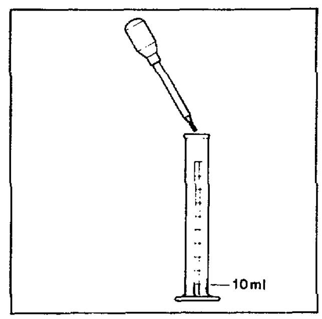
Measurement of Expansion

It is not necessary to perform this test unless irregularities are encountered in the Quality of Sample or Measurement of % Concentration Tests.

1. Extract at least 10 ml of solution from the premix solution prepared earlier.

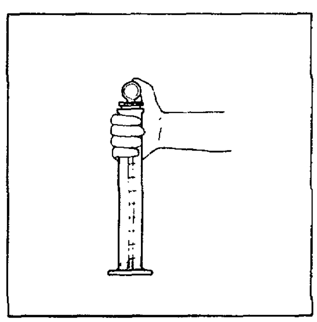
2. Place precisely 10 ml in the clean 100 ml graduated cylinder.

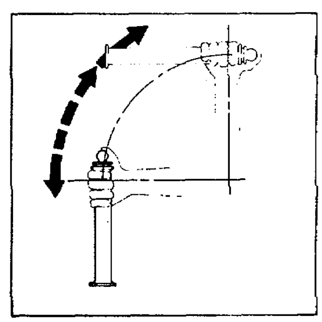




3. Place stopper in graduate, placing thumb over top of stopper.

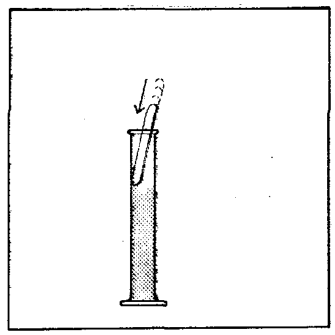
4. Shake graduate in 90° arc, hard and rapidly at least 25 times. If any liquid is in evidence below foam bulk, reshake.

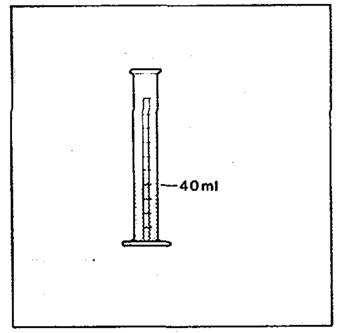




5. Push foam clinging to sides of graduate down into foam bulk with a spatula and read volume at top level of foam.

6. Total volume of less than 40 ml corresponds to a foam expansion of less than 4, meaning solution must be replaced.





TEST PROCEDURES-PREMIXED "ANSULITE" AFFF

Ansul recommends that premixed solutions be inspected annually. Should the quality of the ANSULITE AFFF solution be questioned for any reason (improper mixing, sediment, improper storage temperatures, etc.) it is recommended that the tests be performed immediately. An Inspection Sheet (Ansul Form No. F-7880) is available for recording all test data.

Initial Inspection
When first putting an ANSULITE AFFF premix system into service, it is recommended that the following measurements be taken:
1. Measurement of concentrate refractive index
2. Generation of the refractive index versus per cent concentration curve
3. Determination of quality of water

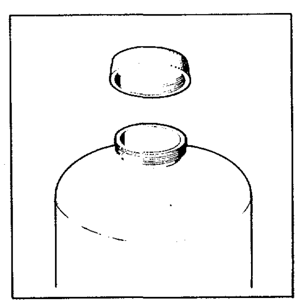
The procedure for determining concentrate refractive index is described on Pages 4-5. By submitting the concentrate's batch number to Ansul Fire Protection, the initial refractive index can be obtained. The generation of the refractive index versus per cent concentration curve is illustrated on Page 12.

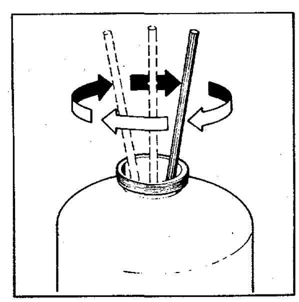
ANSULITE AFFF Premix Soliution
Quality of Sample
1. Remove fill cap from ANSULITE AFFF solution tank.
2. Stir solution vigorously for 30 seconds using a nonmetallic rod.

Determining water quality consists of examining a sample of the water for residue and/or sediment. Let the water stand in its container for 5 minutes and then record the appearance and amount of any residue. This should help you avoid unnecessary concern with the same residue during future premix inspections.

All three of the above test results should of course, be recorded on the inspection sheet.

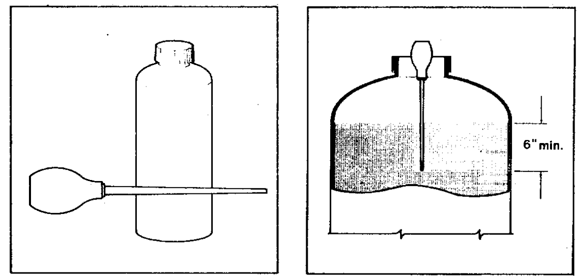
Periodic Inspection
As described on Pages 8--11, the periodic inspections will involve the following tests:
1. Quality of Sample
2. Measurement of Per Cent Concentration
3. Measurement of Film Formation and Sealability
4. Measurement of Expansion



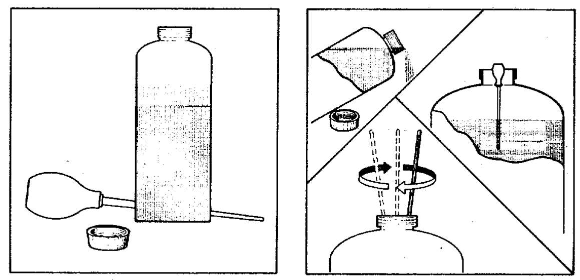


Quality of Sample (Continued)

3. Use only clean, dry apparatus to extract and contain solution sample. If doubtful, clean apparatus with detergent (Alconox), rinse well and dry.
4. Extract 1 quart of solution from a depth of at least 6 inches (15.2 cm) below liquid level and replace fill cap.



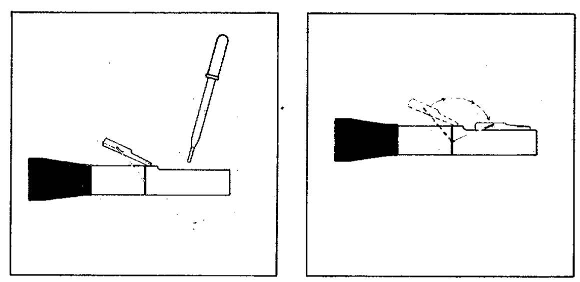
5. Let the sample sit for about five minutes, then look for stratification, sediment or sludge. If more than 1% by volume of sediment or sludge is found, you should replace the premix solution. However, any sludge or sediment that was introduced **with the water**, in the premixing process, may be disregarded. Refer to your records for information about the sludge or sediment content of the water originally used.
6. If the sludge or sediment content of the sample is found to be unacceptable, clean all the sampling equipment carefully-and repeat Steps 2 through 5 to verify your findings.*



Measurement of % Concentration

The test should be performed three times, with the result averaged to obtain the figure for the Field Inspection Record entry.

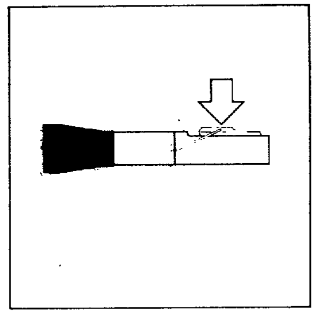
1. Hold your TS Meter** in a horizontal position, swing the cover plate over the body of the instrument to expose both the prism and the cover plate surface (clean if required) and place a small sample of the premix solution on the measuring prism. **NOTE**: Use a plastic pipette to minimize the possibility of scratching the prism surface by the contact with the pipette tip.

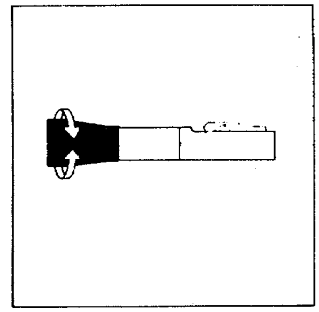


2. Swing (close) the cover plate over the measuring prism without delay to assure minimum evaporation. **CAUTION**: Take care to avoid lifting the cover plate before the reading is made. Care must be taken to avoid air bubbles when placing sample on the refractometer prism.

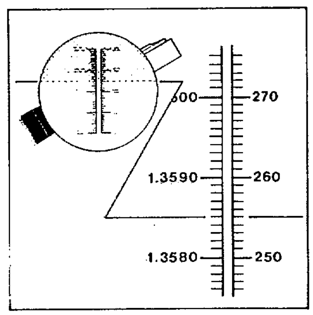
* Document the condition of the samples regardless of the test results.
* This procedure is essentially identical to that given in "Instructions-for a.d Care of the AO TS Meter and Concentrimeter" by the American iltics Corporation, Scientific Instrument Division, Buffalo, New York, 14215. The TS Meter is available from scientific supply companies, such as Rascher-Betzold or Curtin Scientific at a cost of about $500.

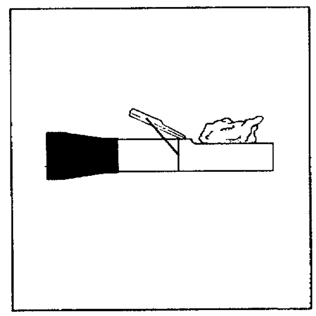
3. To hold the instrument for reading, place middle finger on nameplate and press the plastic cover gently but firmly to spread a minimal volume of sample in a thin, even layer over the prism. Expose it to an illuminating source such as a fluorescent or incandescent lamp or full sunlight. **NOTE**: To obtain the optimum contrast between light and dark boundary, the instrument may have to be properly tilted with respect to the lamp.
4. Bring the scale seen in the eyepiece into best focus by rotation of the eyepiece. **NOTE**: This setting need not be changed as long as the same individual continues to use the instrument.





5. Make the reading on the appropriate scale at the point where the dividing line between bright and dark fields crosses the scale and use the appropriate concentration graph to convert readings to per cent concentration. This graph was generated when the initial inspection was performed. (The procedure is described on Page 12.) If the average of the three refractive index readings is not within ± 1% of refractive index anticipated (from the appropriate graph and the initial inspection figures of the Field Inspection Record) additional tests will be required to verify the acceptability of the ANSULITE AFFF premix solution.
6. Use a soft cloth or soft tissue (moisten one end with lukewarm water) for wiping the prism clean and dry. If the prism surface or cover plate is not well cleaned before the next sample is loaded, an erroneous or fuzzy reading may result. **CAUTION**: Do not immerse the eyepiece or the black focusing ring in water. Never use gritty cleaning compounds to clean the prism and never expose the instrument to temperatures above 150 ° F (65.6° C).

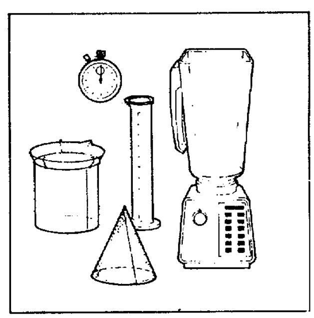


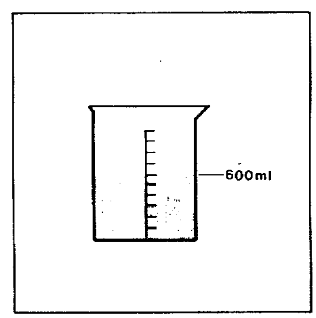


Measurement of Film Formation and Sealability Quality*

This test should be performed three times, with the result averaged to obtain the figure for the Field Inspection Record entry.

1. Equipment required to conduct the test includes an automatic blender for use as a test foam maker (at 70° ± 5 ° F or 24 ° C + 2 ° C); an-80-mesh conical screen of corrosion-resisting steel (5 inches (15.2 cm) in height by 43/4 inches (12.1 cm) in diameter); a 1000 ml corrosion-resisting graduated measure (4 ½ inches (11.4 cm) in diameter, 5 inches (15.2 cm) deep) with small metal clips fitted at the top edge to restrain the screen from floating out of the container during the test, a corrosion-resisting 100 ml graduated measure, a stopwatch, and a flame source (see Step No. 6). In lieu of the blender to generate a foam sample, a small sample of foam can be discharged through the system's foam nozzle.
2. Pour a carefully measured 600 ml of 98 per cent cyclohexane into the 1000 ml capacity graduated measure.



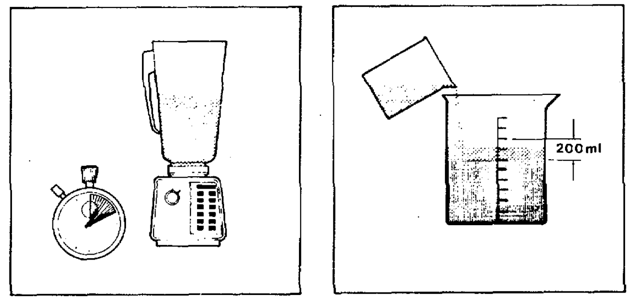


* This procedure is essentially identical to TEST FOR FILM FORMATION AND SEALABILITY OF AFFF SOLUTIONS ACCORDING TO SPECIFICATION -IL-F-24385 TEST PROCEDURE 4.7.6.

Measurement of Film Formation and Sealability Quality (Continued)

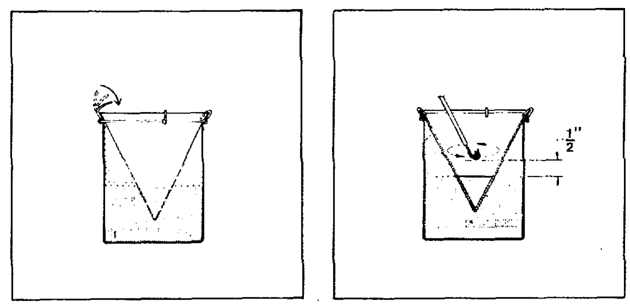
3. Place a 1000 ml sample of the premix solution to be tested in the blender and foam for 10 seconds at low speed or generate the foam sample by discharging a small amount of solution from the system's nozzle.

4. Pour 200 ml of this foam onto the fuel surface.



5. Insert the screen into the measure, clip firmly into place and start your stopwatch.

6. After 1 minute of elapsed time, pass a small 1-inch (1.2 cm) long flame six times around the fuel surface at a height of ½ inch (2.5 cm) (± 1/8 inch). A small flash may occur but no sustained ignition shall result if an effective vapor-seal is present. Sustained ignition means the solution should be replaced. **NOTE**: A handheld propane tank with a capillary tubing outlet and adjustment valve will readily provide a 1 inch (2.5 cm) long pilot flame.

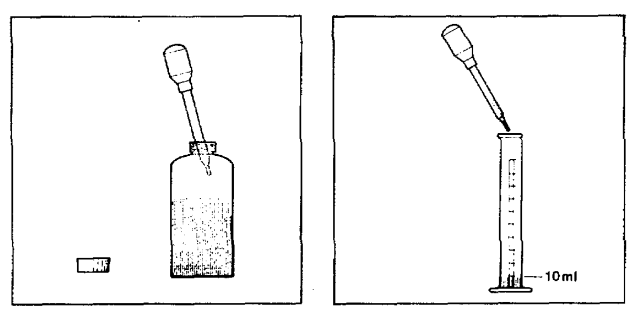


Measurement of Expansion

This test should be performed three times, with the result averaged to obtain the figure for the Field Inspection Record entry.

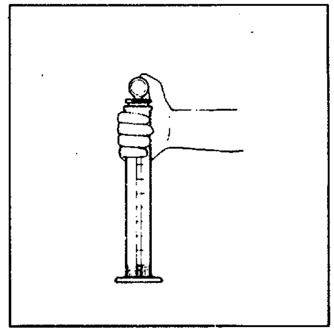
1. Extract at least 10 ml of the premix solution from one quart sample previously removed from tank.

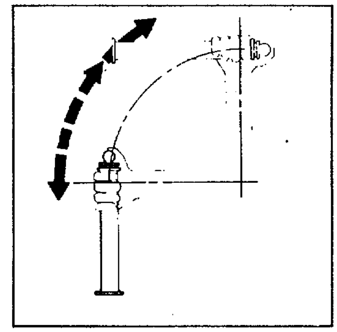
2. Place precisely 10 ml in the 100 ml graduated cylinder.



3. Place stopper in graduate, placing thumb over top of stopper.

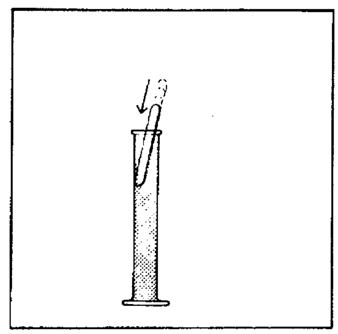
4. Shake graduate in 90° arc hard and rapidly at least 25 times. If any liquid is in evidence below foam bulk, reshake.

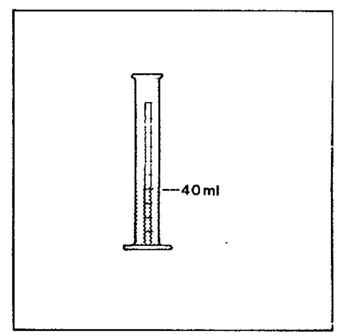




5. Push foam clinging to sides of graduate down into foam bulk with a spatula and read volume at top level of foam.

6. Total volume of less than 40 ml corresponds to a foam expansion of less than 4, meaning solution must be replaced.





USING THE REFRACTIVE INDEX CURVE TO DETERMINE PREMIX CONCENTRATION AND TO CHECK PROPORTIONING ACCURACY

Developing the Refractive Index Versus Concentration Curve

The refractive index of an ANSULITE AFFF solution can be used to determine premix concentrations or to check the accuracy of proportioning equipment. Measurement of the refractive index allows you to determine the per cent ANSULITE AFFF concentrate in solution with either fresh or salt water. The higher the concentrate level, the higher the refractive index. In fact, a straight line relationship exists between refractive index and per cent ANSULITE AFFF concentration.

The refractive index is measured with the use of a refractometer, such as the hand-held AO TS Meter and Concentrimeter, manufactured by the American Optical Corporation, Scientific Instrument Division, Buffalo, NY 14215. This TS meter is available from many scientific supply companies at a cost of about $500. In lieu of purchasing the instrument, many local laboratories will have bench models for determining refractive index.

Prior to mixing the premix solution or checking proportioner accuracy, it will be necessary to plot a refractive index versus concentration curve. Since the refractive index will vary somewhat with water type, it is important that this curve be based on water taken from the same source used for your premix solution or your proportioner.

Plotting the Refractive Index Versus Concentration Curve

1. The following equipment will be required:
   AO TS meter (refractometer)
   100 ml graduated cylinder
   Medicine dropper
   Soft cloth or soft tissue
   15-25 ml of your ANSULITE AFFF concentrate
   Sample of water used for premix or proportioning
   Grid for plotting the curve such as the one given on the back of the "Field Inspection Record" at the end of this manual
   Stirring rod
2. To plot the curve select a proportioning range (3 or 4 points) which will cover concentrations both below and above the correct concentration for the ANSULITE concentration which you are using. For example, if you are using ANSULITE 3% concentrate you will want to make ANSULITE/water solutions to cover proportioning both below and above the proper proportioning concentration of 3%. Therefore, for a 3% concentrate, you will want to make up ANSULITE/water solutions of 0%, 2%, 3% and 4%. The refractive index for each of these solutions will be determined and plotted on the refractive index versus concentration graph. The line connecting these points is the curve which will be used to check your premix concentration or proportioner accuracy. This curve should be kept on file with the "Field Inspection Record." Consult Figures 1 thru 5 to determine what proportioning range you should use for your particular ANSULITE foam concentrate.
3. To prepare the ANSULITE/water solutions add the proper volume of ANSULITE concentrate with the water which you will be using in the premix or the proportioned system. For example, to prepare a 2% (by volume) solution mix 2.0 ml of the ANSULITE concentrate with 98.0 ml of your water. This will give you 100 ml of a 2% ANSULITE/water solution. To make a 3% (by volume) solution mix 3.0 ml of the ANSULITE concentrate with 97.0 ml of your water. This will give you 100 ml of a 3% ANSULITE/water solution. A 6% (by volume) solution can be made by mixing 6.0 ml of the ANSULITE concentrate with 94.0 ml of your water to give you 100 ml of a 6% ANSULITE/water solution. Use this general scheme to prepare any solution concentration you wish. Be sure that your measuring and mixing devices are thoroughly cleaned between each ANSULITE/water solution you make up.
4. On your TS meter measure the refractive index of each ANSULITE water solution you make. Three measurements should be made and the results averaged. This averaged refractive index value should then be plotted on the curve which you are making.

Proportioning Accuracy and Calibration

Once the refractive index versus concentration curve is developed, it is a simple matter to calibrate or check the accuracy of your proportioner.

With the proportioner operating, withdraw a sample of foam solution downstream of the proportioner. Measure the refractive index of this solution with the refractometer as described on Pages 8 and 9. As before, it is a good idea to make three measurements and average the results. Using your refractive index versus concentration curve, draw a vertical line through the measured refractive index value on the horizontal axis to the point where it crosses your curve. Then draw a horizontal line across from this point so it intersects the vertical axis. The concentration read at this intercept is the per cent concentration read at this intercept is the per cent concentration of ANSULITE AFFF concentration to water proportioned by your system.

Determining Premix Concentration

The procedures for determining premix concentration are described on Pages 8-9. Note that the refractive index versus concentration curve should be constructed when the premix solution is originally formulated.

FIELD INSPECTION RECORD

ANSULITE AFFF Lot No(s). ____________ ☐ 1% ☐ 3% ☐ 3% F.P. ☐ ARC 3 or 6% or ☐ 6% Concentrate

Date Received ____

Loaction ____ ☐ Storage ☐ Installation

Amount of Agent ____

Is concentrate to be premixed, either now or later? ☐ Yes ☐ No.

INITIAL INSPECTION (CONCENTRATE ONLY)

DATE	QUALITY OF SAMPLE	REFRACTIVE INDEX

INITIAL INSPECTION (PREMIX SOLUTION ONLY)

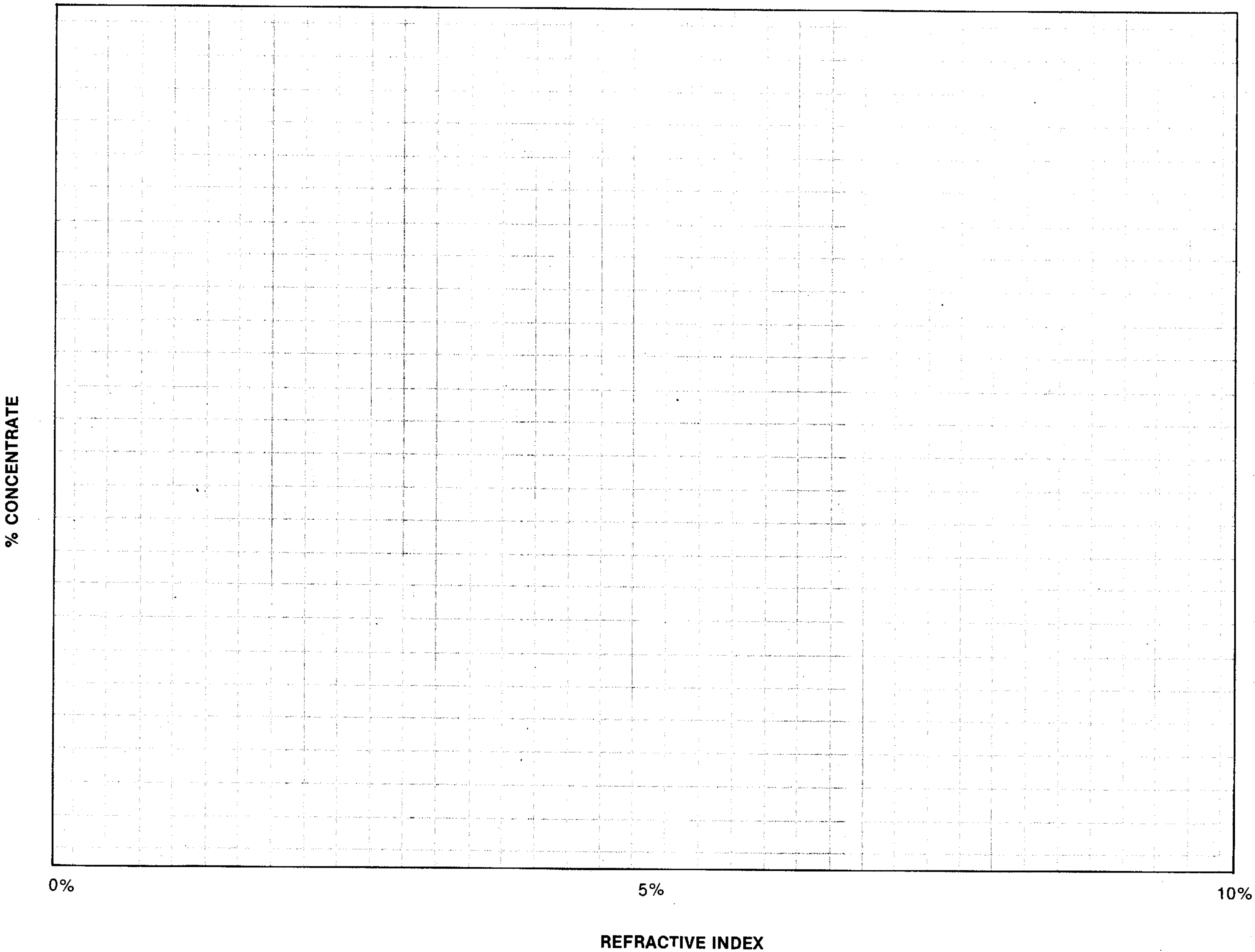
DATE	QUALITY OF WATER	AMOUNT OF WATER	AMOUNT OF CONCENTRATE	REFRACTIVE INDEX*

PERIOD INSPECTION**

DATE	QUALITY OF SAMPLE	REFRACTIVE INDEX*	% CONCENTRATION FROM GRAPH (PREMIX ONLY)	FILM FORMATION AND SEALABILITY	EXPANSION RATIO	INSPECTION PERFORMED BY

*Refractive index versus concentrate curve for premix solution to be constructed on reverse.

**Inspect premix solutions annually. Inspect concentrate every 5 years. Refer to the manual for proper procedure.


% CONCENTRATE
0%
5%
10%
REFRACTIVE INDEX

FIELD INSPECTION RECORD

Ansul Form F7880

THE ANSUL COMPANY, MARINETTE, WISCONSIN 54143

ANSUL AFFF FIELD INSPECTION RECORD

Ansul AFFF Lot No(s). ______________ ☐ 3% or ☐ 6% Concentrate

Date Received ______________

Location ______________ ☐ Storage ☐ Installation

Amount of Agent ______________

Is concentrate to be premixed, either now or later? ☐ Yes ☐ No.

INITIAL INSPECTION [CONCENTRATE ONLY]

DATE	QUALITY OF SAMPLE	REFRACTIVE INDEX

INITIAL INSPECTION [PREMIX SOLUTION ONLY]

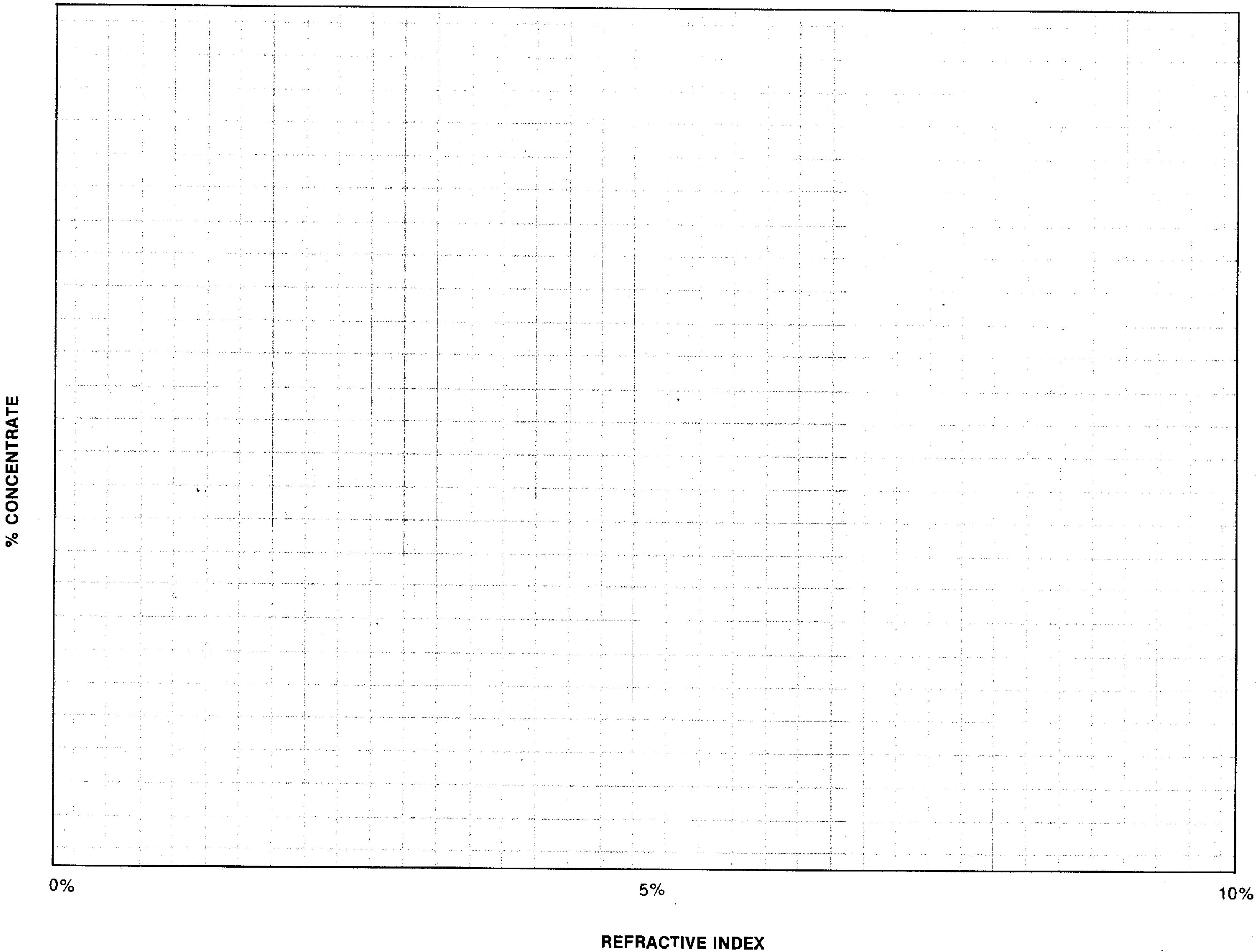
DATE	QUALITY OF WATER	AMOUNT OF WATER	AMOUNT OF CONCENTRATE	REFRACTIVE INDEX*

PERIODIC INSPECTION**

DATE	QUALITY OF SAMPLE	REFRACTIVE INDEX*	% CONCENTRATION FROM GRAPH (PREMIX ONLY)	FILM FORMATION AND SEALABILITY	EXPANSION RATIO	INSPECTION PERFORMED BY

* Refractive index versus concentrate curve for premix solution to be constructed on reverse.

** Inspect premix solutions annually. Inspect concentrate every 5 years. Refer to the manual for proper procedure.


% CONCENTRATE
0%
5%
10%
REFRACTIVE INDEX

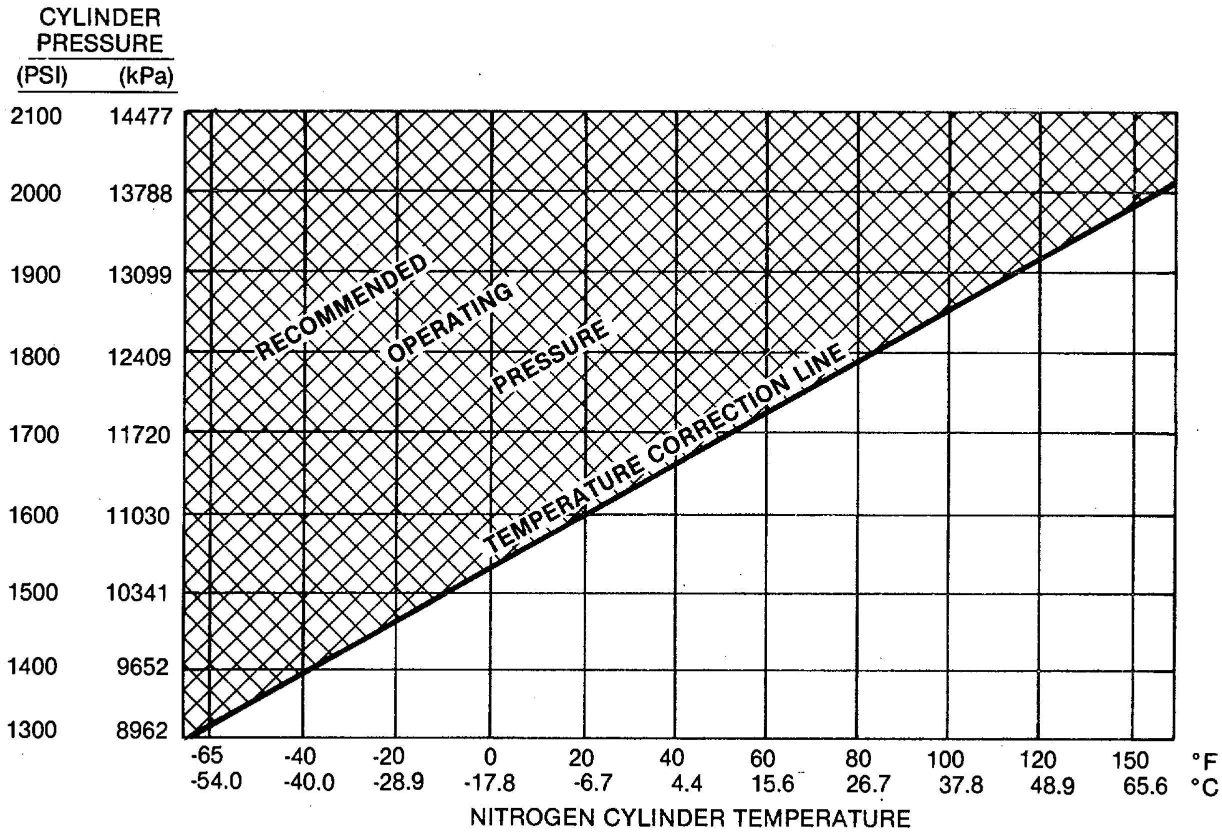
TEMPERATURE CORRECTION CHART

Ansul

For Checking Pressure of 400 Cu. Ft. (11.32 m^3) Nitrogen Cylinder

Ansul fire suppressing/securing systems use compressed nitrogen as the expellant for the extinguishing agents. The instructions covering proper inspection and maintenance of this equipment state that the 400 cu. ft. (11.32 m^3) nitrogen cylinders should be replaced with fully charged cylinders if the pressure is less than 1750 PSI (12064 kPa) at 70° F (21 °C). However, the pressure in the nitrogen cylinder varies with changes in temperature.

Accordingly, the chart below has been prepared to assist users of Ansul equipment in determining that the cylinder being checked contains enough nitrogen to furnish a recommended operating pressure.



Examples:

1. The nitrogen cylinder on an Ansul fire suppressing/securing system indicates a pressure of 1800 PSI (12064 kPa) on the pressure gauge. The temperature of the cylinder is 80° F (26.7' C). Reference to the chart shows that this is above the "temperature correction line" and the cylinder does not need to be replaced.

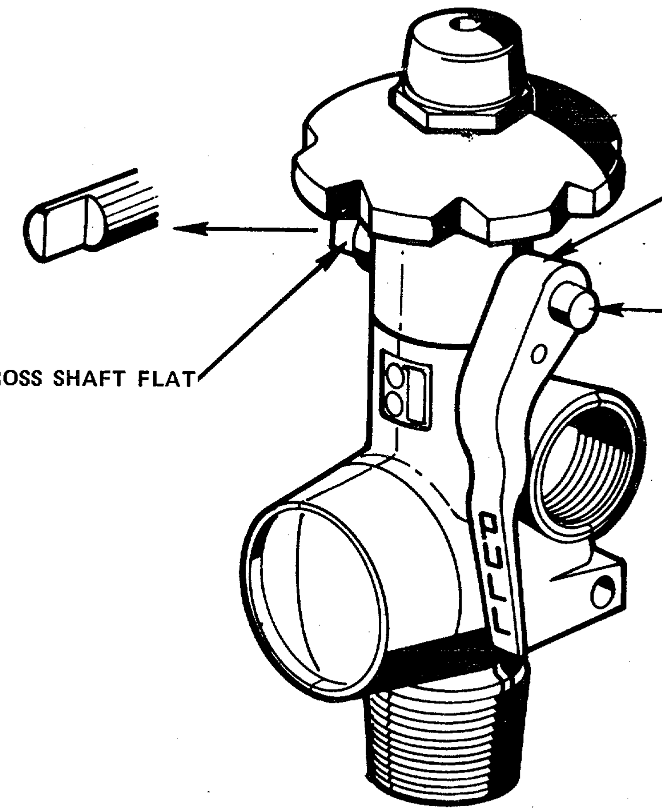
2. One of the nitrogen cylinders of an Ansul fire suppressing/securing system indicates a pressure of 1600 PSI (11030 kPa) on the pressure gauge. The temperature of the cylinder is 80° F (26.7° C). Reference to the chart shows that this is below the minimum recommended pressure for this temperature. The cylinder should be replaced by a fully charged nitrogen cylinder.

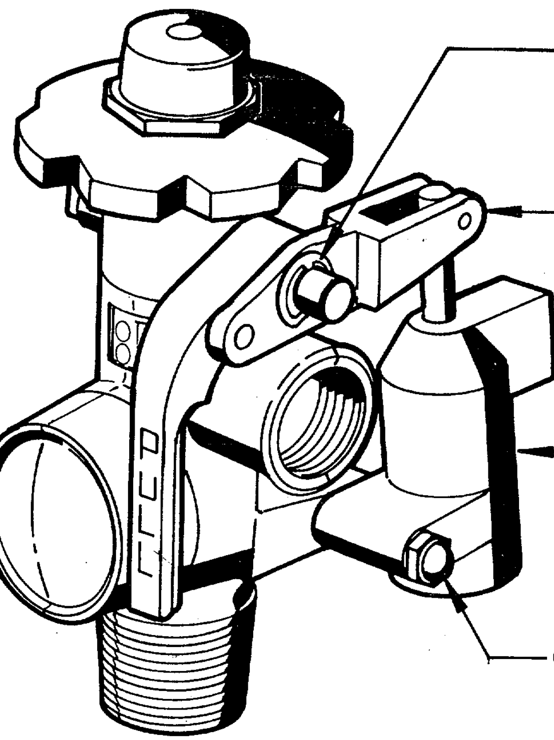
QUICK-OPENING VALVE

Ansul

A4

ANSUL QUICK-OPENING VALVE

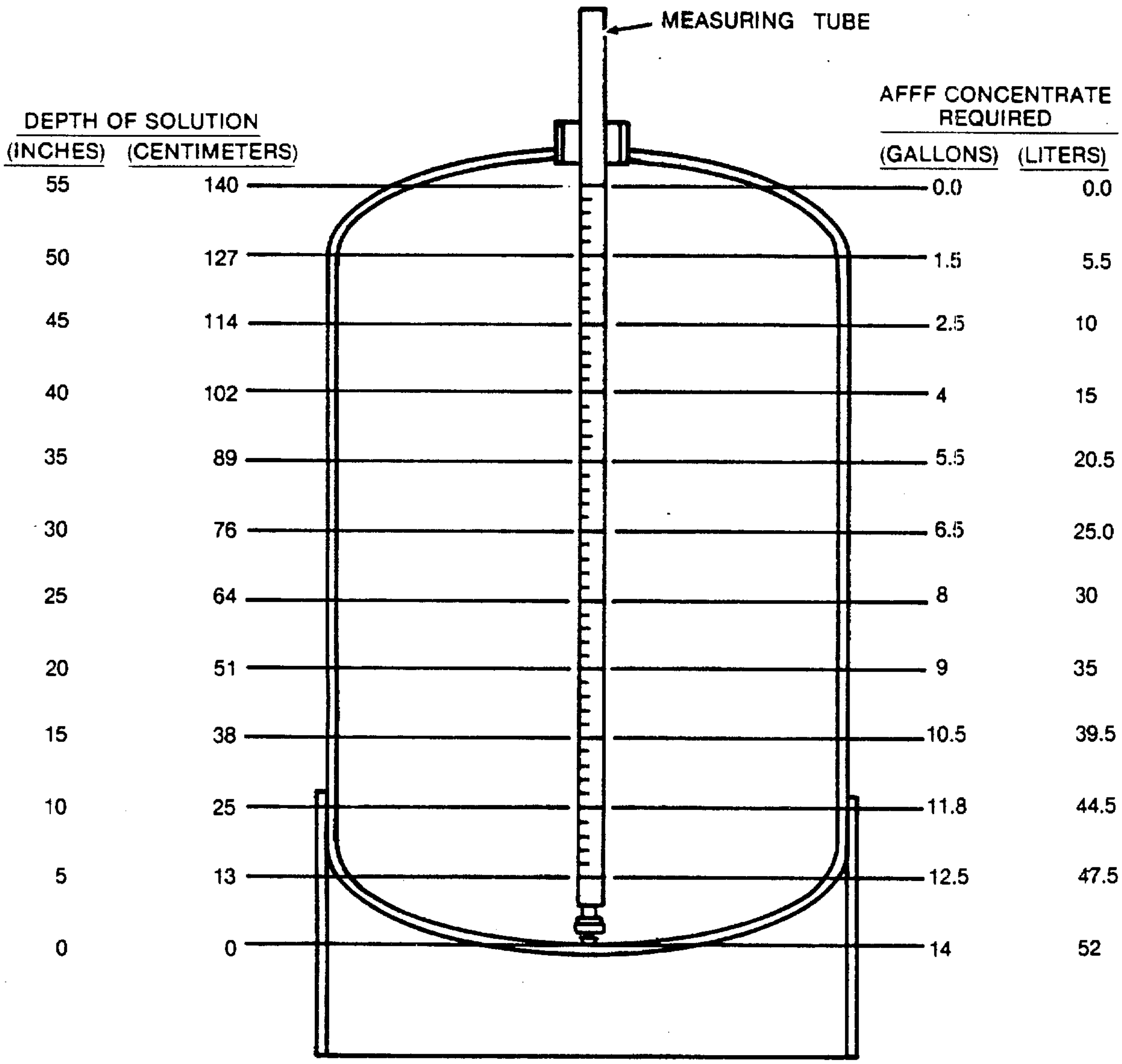




AFFF 6% RECHARGE GUIDE

Ansul

The amount of AFFF (aqueous film-forming foam) concentrate necessary to complete a partial charge can be computed by measuring the depth of the solution remaining in the tank and referring to the chart below.



200 GALLON (757 LITERS) NOMINAL CAPACITY AFFF SOLUTION TANK
FILL TO 2 INCHES (5 CENTIMETERS) BELOW BOTTOM OF FILL OPENING

FEDERAL SIGN AND SIGNAL CORPORATION

Siren/PA Control System (PA-2100) with Michphone (FN-900) and
Speaker (TS-100) Ansul Part No. S-52917
Warning Light (Aero-Dynic 24A) Ansul Part No. S-52531

C.E. NIEHOFF COMPANY

Floor Mounted Switch (Part No. DR-139) Ansul Part No. S-52920

UNITY MANUFACTURING COMPANY

Rear Decklights (AG-6) Ansul Part No. S-28259
Front Spotlights (Model-225) Ansul Part No. S-52540
Ansul Part No. S-52541

PARATECH INCORPORATED

Rescue Saw (K-1200) Ansul Part No. S-27770

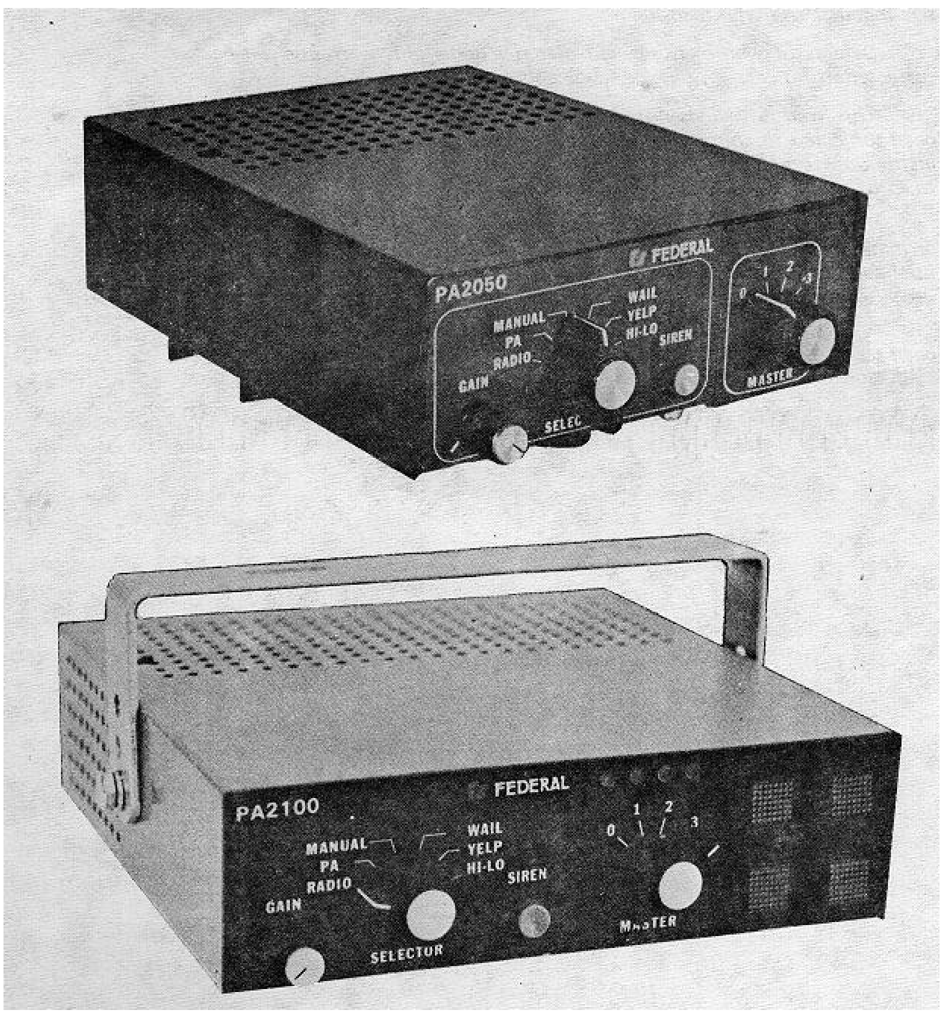
PRICE $2.00

SIGNAL DIVISION
Federal Signal Corporation

MODELS PA2050 & PA2100

SIRACOM II ®

SIREN/CONTROL SYSTEM



INSTALLATION AND SERVICE INSTRUCTIONS

NOTE

This service manual describes the PA2100. However, the PA2050 and PA2100 are identical except the PA2050 does not have provision for accommodating the optional lighted pushbutton switches. Therefore, all descriptions, specifications, and service data apply equally to both models.

Warranty

The Federal Signal Corporation warrants each of its new electronic sirens to be free from defective material and workmanship for a period of one year from date of purchase. Federal Signal Corporation will remedy any defect which under normal installation and operation discloses such defect; provided the unit is delivered, transportation prepaid by owner, to our factory for examination and such examination reveals that in our judgment a defect in material and/or workmanship exists. In all cases, Federal Signal Corporation will be sole judge of what constitutes defective material and workmanship.

Defects of workmanship and material under this warranty will be corrected at no cost to you for labor and material.

This warranty does not extend to any electronic siren which has been subjected to abuse, misuse; improper installation or violation of any instructions supplied by us, nor extended to units which have been serviced or modified at any facility other than our factory.

This warranty takes precedence over all other warranties expressed or implied and no representative or other person is authorized to assume for Federal Signal Corporation any other liability in connection with the sale of our electronic sirens.

290A389B

FEDERAL SIGNAL CORPORATION

SECTION I
GENERAL DESCRIPTION

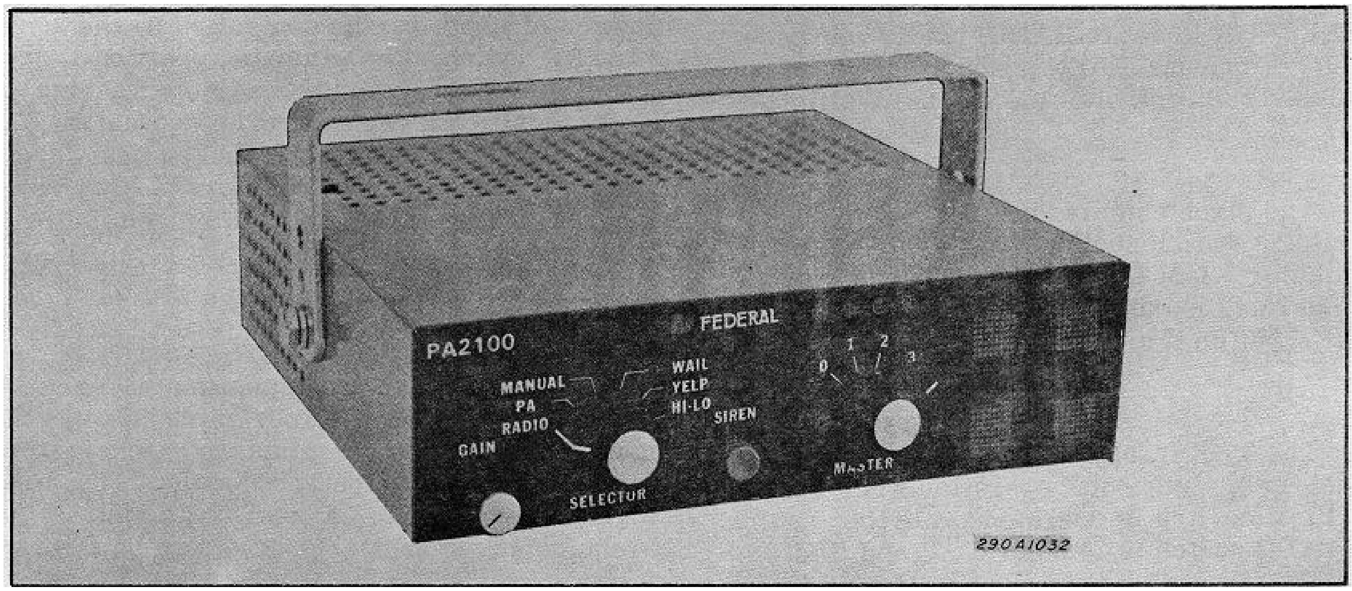


Figure 1-1. Model PA2100 Siren/Control System.

1-1. GENERAL.

The Federal Model PA 2100 SIRACOM II (figure 1-1) is a precision-built, com- pact Siren/Control System of advanced de- sign. It consists of a Siren Module and a Control Module.

The PA 2100 is designed to operate from a nominal 12 volt DC, negative ground electrical system. The speaker terminals, on the rear panel of the unit, in conjunction with a slide switch on the rear of the siren module inside of the housing, allow the use of either 100 watt or 58 watt speakers.

The Siren Module produces three distinct sounds. This module also has provisions for public address (PA), amplification of radio messages (radio rebroadcast), and manual siren operation.

If it is desired to make use of the provisions for PA and radio rebroadcast, a Federal Model MNCT Microphone or the vehicle's two-way radio microphone and the appropriate adapter module are re- quired. The Model MNCT Microphone and a line of adapter modules to fit most popular makes of two-way radio microphones are available as options from Federal. The adapter modules include the wiring required to interconnect the PA 2100 with the microphone and the two-way radio.

The Siren Module can be easily re- moved from the vehicle without disturbing the wiring to the control switches and with- out disabling the vehicle accessories (horn, lights, radio, gun lock, etc.).

The Control Module contains all of the circuitry and devices necessary to control the entire vehicle warning light system and accessories. The Control Module also routes power to the Siren Module.

An external 50 ampere, automatic reset circuit breaker is supplied to protect the vehicle warning light system.

A panel light and a -pilot light are illuminated whenever the vehicle ignition switch is on.

1-2. SIREN MODULE.

Most of the solid state electronic circuitry in the Siren Module is mounted on printed circuit boards. This circuitry provides a high level of performance and reliability over a wide range of environmental conditions. The circuitry incorporates feed- back that maintains high audio quality for the PA and radio rebroadcast functions. The electronic circuitry in the Siren Module is protected by a 20 ampere fuse.

The Siren Module produces three distinct siren sounds; WAIL, YELP, and HI-LO. In addition, it also has provisions for public address (PA) and radio rebroadcast. A LED indicator illuminates when the SELECTOR is set to RADIO (radio rebroadcast). A manual SIREN pushbutton switch is included for control of the Manual Wail signal.

The siren can also be operated by an auxiliary switch such as the vehicle horn switch or a foot switch. The unit can still be operated manually by depressing the SIREN button if an auxiliary switch is installed.

The TAP II Instant Yelp feature provides 'push-on", "push-off" operation when the auxiliary switch is operated while the MASTER switch is in position 3 and the SELECTOR switch is in the WAIL, YELP or HI-LO positions.

The PA 2100 can be used with a Model MNCT microphone or in common with the microphone included with the two-way radio installed in the vehicle. The Model MNCT microphone is a transistorized, noise cancelling microphone that has the characteristics necessary to drive the audio amplifier in the PA 2100. A Model FN900 Adapter Module is required when the MNCT Microphone is used with the PA 2100.

In common microphone operation, an optional adapter module connects the siren directly to the two-way radio. The common microphone is electrically connected to the two-way radio in all SELECTOR switch positions except PA. When the SELECTOR switch is set to PA, the microphone is connected to the siren amplifier so that messages can be announced over the siren speaker system.

1-3. CONTROL MODULE.

A. General

The Control Module is designed to be used as a central connection and control location for all vehicle emergency warn- ing devices along with the distribution of power and control of other emergency and safety devices normally found in an emergency vehicle.

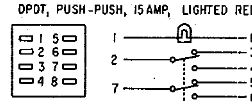
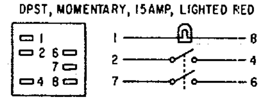
B. MASTER Switch

The four position MASTER rotary switch is used to control the emergency warn- ing light system and the siren. Any combination of lights can be controlled by the MASTER switch. For example, position 1 can be used to operate the vehicle's flashing lights; position 2 can control the rotating lights and the siren is controlled by position 3. (Position 3 also transfers the horn ring circuit from the horn to the siren). Position 0 is the "off" position.

A maximum of three switched circuits can be controlled. by any given position of the MASTER switch. The actual de- vices controlled by a given position of the MASTER switch can be programmed by means of a nine section miniature rocker switch inside of the Control Module. The switched circuits can be reprogrammed if requirements change.

C. Accessory Control Switches (PA 2100 Only)

A maximum of four optional, lighted, pushbutton type switches can be provided by Federal for installation on the front panel of the Control Module. These switches can be used for controlling vehicle accessories such as the spotlight, gunlock, brake lights, trunk lid, etc. These switches are available in two types. The switch types and their typical applications are shown in Chart 1-1.

MODEL	TYPE / CONTACT ARRANGEMENT	TYPICAL APPLICATION
AS1	DPDT, PUSH-PUSH, 15 AMP, LIGHTED RED 	AUXILIARY LIGHTS ALLEY LIGHTS BRAKE LIGHT OR BACK-UP LIGHT CUT-OFF
AS2	DPST, MOMENTARY, 15 AMP, LIGHTED RED 	GUN LOCKS TRUNK LOCK DOOR LOCKS MECHANICAL SIREN BRAKE

NOTE: THE MODEL CLK ACCESSORY KIT IS ALSO AVAILABLE. THIS LENS KIT CONTAINS ONE EACH OF THE FOLLOWING: RED, YELLOW, GREEN, AND BLUE LENSES. THE STANDARD RED LENS PROVIDED WITH EACH SWITCH IS FACETED, WHEREAS ALL LENSES IN THE KIT ARE TRANSLUCENT.

Chart 1- 1.

D. Terminal Positions

Most of the electrical connections to the PA 2100 are made by means of 16 screw terminals. As indicated in figure 1 - 2, all terminal positions on the rear panel of the Control Module are clearly labeled on a legend plate. The function and current capacity of each terminal are listed in Chart 1-2.

E. Flasher Option

An optional internal alternating flasher is available for use with the PA 2100. This flasher is capable of switching a maximum of 12 amperes. The flasher can also be used as a single light flasher. The flash or alternating rate is approximately 90 flashes or alternations per minute. The flash or alternating rate is independent of the voltage, load, and temper- ature.

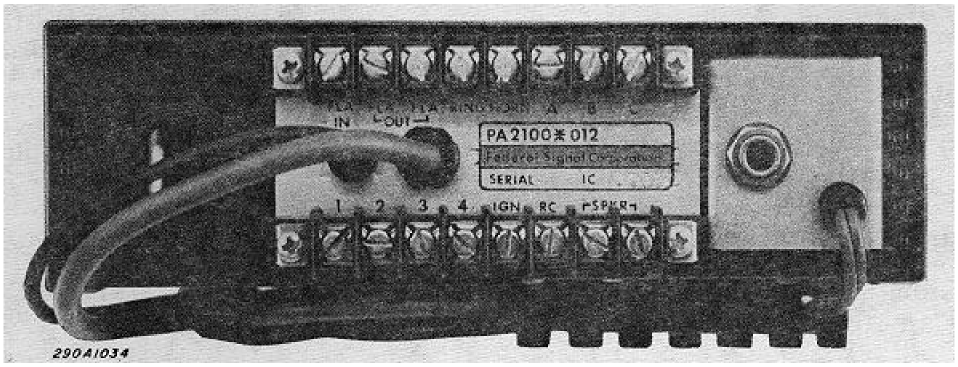


Figure 1-2. Model PA2100 Rear View.

Terminal	Function	Current Capacity
FLA IN	Flasher input	12A
FLA OUT (2)	Flasher output	12A
RING	Vehicle horn ring	2A
HORN	Vehicle horn	2A
A	Flasher Off override	-
B	Flasher On override	-
C	Not connected	-
1	MASTER Circuit 1	30A
2	MASTER Circuit 2	30A
3	MASTER Circuit 3	30A
4	Not connected	-
IGN	Ignition switch connection	10. 5A
RC	Radio Control (for radio rebroadcast)	10A
SPKR	Speaker Terminals	-

Chart 1-2.

SECTION II
SPECIFICATIONS

2-1. GENERAL.

Input Voltage	10VDC to 16VDC (16VDC operation limited to 15 min.)
Polarity	Negative ground only
Standby Current (MASTER switch set to position 0)	0 mA. (not including panel lamp)
Operating Temperature Range	-30°C to +65°C
Dimensions (HWD - excluding heat sink, knob and rear trim)	2-3/8" x 7-7/8" x 8" (6cm x 20cm x 20.3cm)
Weight (approx.)	10 lb. (4.5kg.)

2-2. SIREN.

Operating Current (14.0VDC - WAIL)	
1 Low Power Speaker	5 amperes
2 Low Power Speakers or 1 High Power Speaker	10 amperes
2 High Power Speakers	15 amperes
Frequency Range	550 to 1500Hz
Cycle Rate	WAIL - 10 cycles/min. YELP - 180 cycles/min. HI-LO - 50 cycles/min.
Voltage Output (approx.)	
1 Low Power Speaker	45V P-P
2 Low Power Speakers	40V P-P
1 High Power Speaker	64V P-P
2 High Power Speakers	60V P-P

2-3. AUDIO.

NOTE

14.0VDC supply voltage. Radio potentiometer and GAIN control at maximum

Frequency Range	300 to 10,000Hz
Harmonic Distortion	10% max. at all power levels from .5 to 70 watts (frequency response ±3dB)
Input Impedance	Radio - 3.6K ohms Carbon Mic. - 3.6K ohms Magnetic Mic. - 10K ohms
Signal input voltage required to obtain 20 Vrms across a 5.5 ohm load	Radio - 0.45 Vrms Carbon Mic. - 0.165 Vrms Magnetic Mic. - 0.025 Vrms

2-4. ACCESSORIES (OPTIONAL).

Model MNCT	Transistorized Noise Cancelling Microphone
Model FN900	Federal Model MNCT Microphone Adapter Module
Model FN901	Federal Model MNC or MR Microphone Adapter Module
Model FN902	Federal Model VPII Microphone Adapter Module
Model FN903	Motorola Microphone Adapter Module
Model FN904	Motorola Micor Microphone Adapter Module
Model FN905	RCA Microphone Adapter Module
Model FN906	RCA 500 Microphone Adapter Module
Model FN907	GE Microphone Adapter Module
Model FN908	GE Master II Microphone Adapter Module
Model FN909	GE TPL Microphone Adapter Module
Model FN910	Federal Duty Patrol Microphone Adapter Module
Model FN911	Aerotron MPAC 6,7 or 8. Adapter Module
Model FN912	RF Communications Model RF-498 Adapter Module
Model FN913	Motorola "Converta-Com" Microphone Adapter Module

SECTION III
INSTALLATION

3-1. UNPACKING.

After unpacking the Model PA 2100, examine it for damage that may have occurred in transit. If the equipment has been damaged, file a claim immediately with the carrier stating the extent of the damage. Carefully check all envelopes, shipping labels and tags before removing or destroying them. If an adapter module was ordered, it is packed in a separate carton.

3-2. GENERAL.

Before connecting any wires to the PA 2100 install all revolving and flashing lights, gunlocks trunk locks and other de- vices that will be controlled by the PA 2100. Route all wiring to the mounting location of the PA 2100, allowing 8 to 12 inches of extra wire at the siren location. Install the vehicle speakers and route the speaker leads (AWG 18 wire) to the siren location. Run leads to the vehicle's horn ring circuit. Install the 50 ampere circuit breaker provided between the battery and the firewall, and as close to the battery as practical. In- stall leads between-the battery and the circuit breaker and the siren location using wire no smaller than AWG 10. Install the wiring between the ignition switch and the siren installation site. If desired, all leads at the PA 2100 may be terminated with crimp-on spade connectors.

3-3. CONTROL MODULE ACCESSORY SWITCHES. (PA 2100 Only)

A. General.

The PA 2100 Control Module is de- signed to accommodate up to four optional customer installed pushbutton switches. These switches are used to control various vehicle mounted devices. There are two types of switches available. Switches that meet the customer's requirements are selected at the placement of the order. Switch types, their descriptions, and typical applications are listed in Chart 1-1.

B. Installation.

If no accessory switches are to be installed in the front panel of the Control Module, disregard the procedure that follows:

CAUTION

Do not change any factory wiring in the PA 2100 when the optional accessory switches are being installed. Any change in the existing wiring may over-load the circuitry and damage the unit.

1. In order to wire the accessory switches, it is necessary to remove the top cover from the chassis. To remove the cover, loosen the two hex head captive screws on the bottom of the unit and slide the cover off.

2. Remove one hole plug for each switch to be installed on the front panel of the Control Module. Push the plugs out from the inside of the unit.

3. Install, the switches by inserting them into the desired holes in the front panel in accordance with the instructions provided with the switches. Press the switches into the front panel until they snap in place.

4. Pass all wiring to the accessory switches through the 1" hole in the rear panel of the Control Module. Refer to Chart 1-1 for information concerning the wiring of the switches. The wiring to each switch is determined by the device that the switch controls. Follow the installation instruc- tions included with the devices and ensure that the device is properly fused.

3-4. BRACKET MOUNTING.

The siren is shipped with a swinging mounting bracket that makes it possible to mount the unit in a variety of positions. Positioning the bracket above the unit allows mounting on the underside of the dash. Positioning the bracket below the unit permits mounting on any horizontal surface or, in conjunction with Federal's TU70 Tunnel Mount, on the vehicle's transmission hump.

Mount the siren in a location that is convenient and comfortable to the operator and where it will not interfere with the safe operation of the vehicle. Keep visibility and accessibility of controls in mind when choosing a mounting location.. To install the bracket under the dash, determine the mounting location and proceed as follows (See figure 3-1):

CAUTION

The unit must be installed in an adequately ventilated area. Never install the siren near heater ducts.

A. Use the mounting bracket as a template and scribe two drill positioning marks at the selected mounting location under the dash.

B. Drill two 1/4-inch diameter holes at the position marks.

C. Secure the mounting bracket to the dash using two each of the following: 1/4 - 20 x 3/4 hex head screws, 1/4" split lockwashers and 1/4 - 20 nuts as shown in figure 3-1.

D. Set the siren on the floor of the vehicle as close as possible to its final mounting location. DO NOT secure the PA 2100 to the mounting bracket at this time.

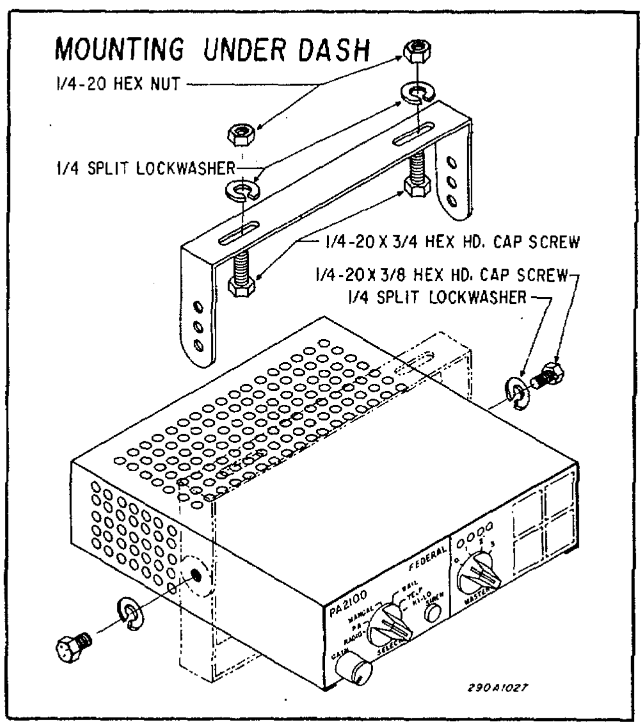


Figure 3-1. Installation of Siren Under the Dash.

When installing the PA 2100 on the transmission hump, a Federal Model TU70 Tunnel Mount is recommended. The TU70 is drilled and tapped to accept the PA 2100 mounting bracket. Follow the installation instructions packed with each unit.

3-5. POWER CONNECTIONS.

NOTE

The PA 2100 can be installed only in vehicles that have a negative ground electrical system.

A. Install the 50 ampere circuit breaker provided in the vehicle engine compartment. Mount the circuit breaker as close as practical to the battery.

B. Connect the red power lead of the PA 2100 to one side of the circuit breaker. If necessary, splice additional AWG 8, or heavier, wire to the heavy red lead using the splice connector supplied.

C. Use AWG 8, or heavier, wire to connect the other side of the circuit-breaker to the vehicle battery.

D. Connect the black wire directly to the vehicle frame as close as possible to the siren.

3-6. SPEAKER CONNECTIONS.

Either 58 watt or 100 watt speakers may be used with the PA 2100. The PA 2100 is also capable of driving a single 200 watt speaker such as the Federal TS200.

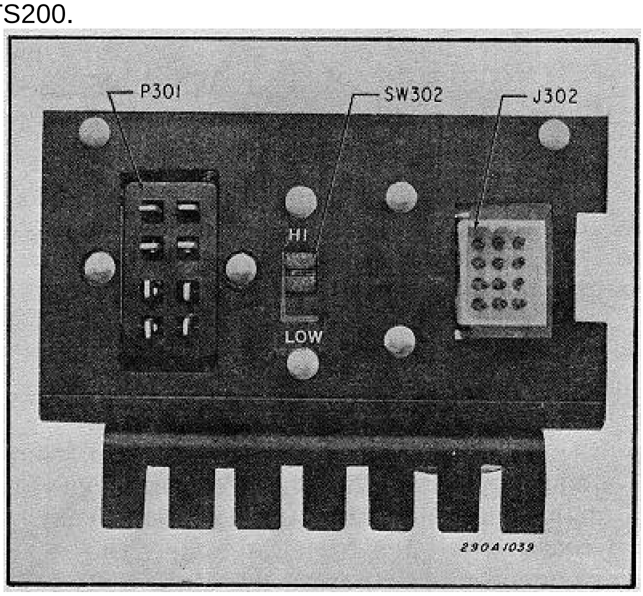


Figure 3-2. Siren Module Rear View.

If one. or two 58 watt speakers such as Federal's CP 25 or TS 24 are being installed, set the speaker HI/LOW switch, SW302, to LOW. See figure 3-2 for the location of SW302. Connect the speaker leads to the SPKR terminals with AWG 18 wire, as shown in figure 3-3.

CAUTION

When using 58 watt speakers, ALWAYS be sure that the Speaker switch is set to LO. If the speaker switch is set to HI, the 58 watt speakers will probably be damaged or destroyed.

When 100 watt speakers such as Federal's CP100 or TS100 are being installed, set SW302 to HI before connecting the speakers to the siren. Use AWG 18 wire as indicated in figure 3-3.

When two speakers are used, it is necessary to connect the speakers in parallel and in phase for optimum performance. This can be accomplished by connecting the speak- er leads marked "1" to the same SPKR terminal on the siren and the two leads marked "2" to the other SPKR terminal (see figure 3-3).

The PA 2100 is capable of driving only one TS200 speaker. Therefore, if a TS200 is to be used with the siren, DO NOT connect any other speaker to the siren. Follow the instructions packed with the TS200 and set the speaker switch to HI before connecting the speaker to the siren with AWG 18 wire (see figure 3-4).

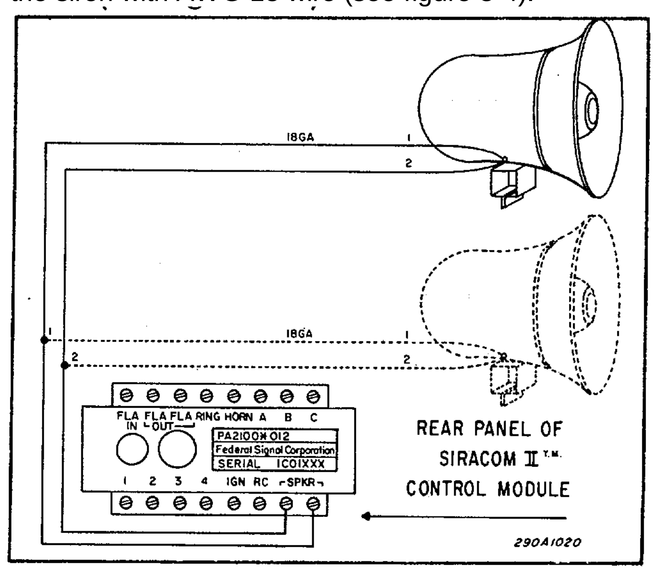


Figure 3-3. 58 Watt and 100 Watt Speaker Connections

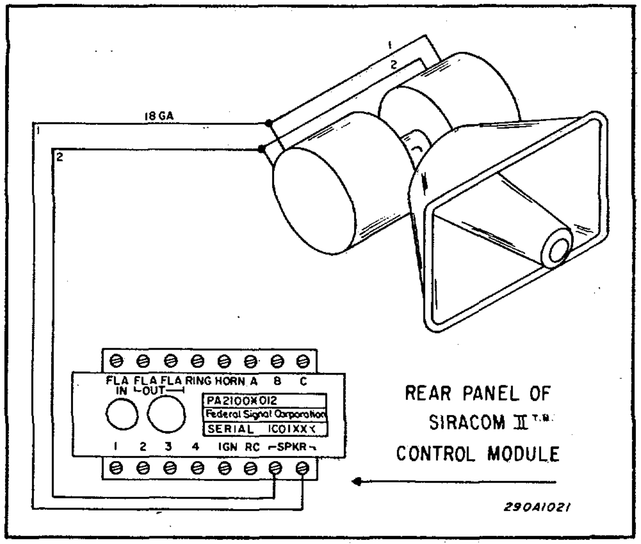


Figure 34. TS200 Speaker Connections.

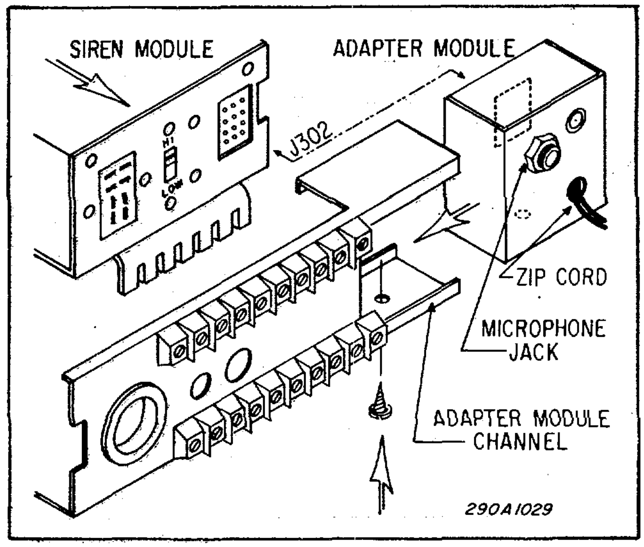


Figure 3-5. Adapter Module Installation.

3-7. RADIO INTERCONNECTIONS.

NOTE

Refer to Section IV for a description of the operation of the PA override and common microphone features. The PA 2100 can be easily set for operation in either of these modes. If required, thenmode0of operation can be changed at a future date.

A. <u>PA Override Connections.</u>

In order to take advantage of the PA override feature, separate microphones are required for the two-way radio and the siren PA function. If PA override operation with rebroadcast of radio messages is desired, proceed as follows (see figure 3-5):

1. Slide the Siren Module from the PA 2100 chassis.
2. Slide the optional FN900 Adapter Module into the Adapter Module Channel.
3. Start the sheet metal screw provided through the hole in the channel and into. the hole in the bottom of the Adapter Module.
4. Replace-the Siren Module in the PA 2100 chassis. Make sure that the connector on the Siren Module mates properly with the connector on the Adapter Module. Tighten the sheet metal screw that was inserted in step 3.
5. Connect the brown zip cord across the two-way radio's speaker voice coil terminals.
6. Plug the Model MNCT Microphone into the Adapter Module. The PA 2100 is now set for PA override operation.

B. <u>Common Microphone Connections</u>.

1. Obtain the Adapter Module that is appropriate for the make of two-way radio in the vehicle. Install the Adapter Module in accordance with the instructions supplied with the module.
2. Plug the two-way radio micro- phone into the receptacle on the Adapter Module. The PA 2100 is now set for common microphone operation.

C. <u>Modification of Siren Amplifier for Positive PTT Circuits.</u>

Perform the following modification only if the radio on your vehicle has a positive PTT circuit (refer to the instructions provided with the adapter module).

1. Slide the Siren Module out of the housing.

2. Remove the Main Circuit Board from the module by removing the mounting screws and unplugging the Main Circuit Board from the Front Circuit Board. Disconnect the rear connector (J303) from the Main Board and lift the board away from the Chassis.

3. Solder a length of AWG 22 bare wire between P201 and P202 on the foil side of the Front Circuit Board in the Siren Module. See figure 3-6 for the location of P201 and P202.

4. Replace the Main Circuit Board in the Siren Module chassis. When reconnect- ing J303, make sure that the color dot on the connector is next to the color dot on the board.

5. Replace the Siren Module in the housing.

3-8. IGNITION CIRCUIT.

Connect the terminal labelled IGN to the vehicle ignition or accessory circuit using AWG 16 wire. This terminal supplies power to the panel light and pilot light as well as the radio control circuit when the ignition switch is turned on.

3-9. HORN RING CIRCUIT.

To connect the vehicle's horn ring circuit so that the horn ring controls the siren's Manual Wail operation in MANUAL and TAP II operation in WAIL, YELP, and HI-LO, proceed as follows (see figure 3-7):

A. Locate the wire that connects the horn ring to the horn relay or the horns. Cut this wire and, if necessary, splice additional wire to each end so that these wires can be terminated on the rear of the PA 2100.

B. Connect the wire that is connected to the horn ring switch to the PA 2100 terminal labelled RING.

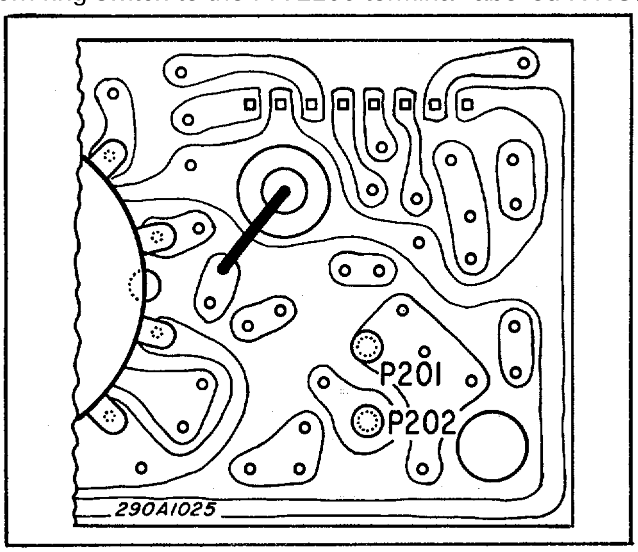


Figure 3-6. P201 and P202 Location.

C. Connect the wire from the horn relay or horn(s) to the HORN terminal on the rear of the PA 2100. The siren automatically compensates for both positive and negative horn ring circuits without any adjustments.

3-10. RADIO CONTROL CIRCUIT.

NOTE

Before performing the procedure in this paragraph, ensure that the instructions in paragraph 3-8 have been performed.

Proper connection of the radio control circuitry allows power to be supplied to the two-way radio whenever the vehicle's ignition is on or when the SELECTOR switch is set to RADIO (radio rebroadcast). To per- form this connection, proceed as follows (see figure 3-8).

A. Connect a wire from the vehicle's two-way radio relay control circuit to the RC terminal on the rear of the PA 2100. If necessary, refer to the two-way radio service manual to locate this wire in the radio.

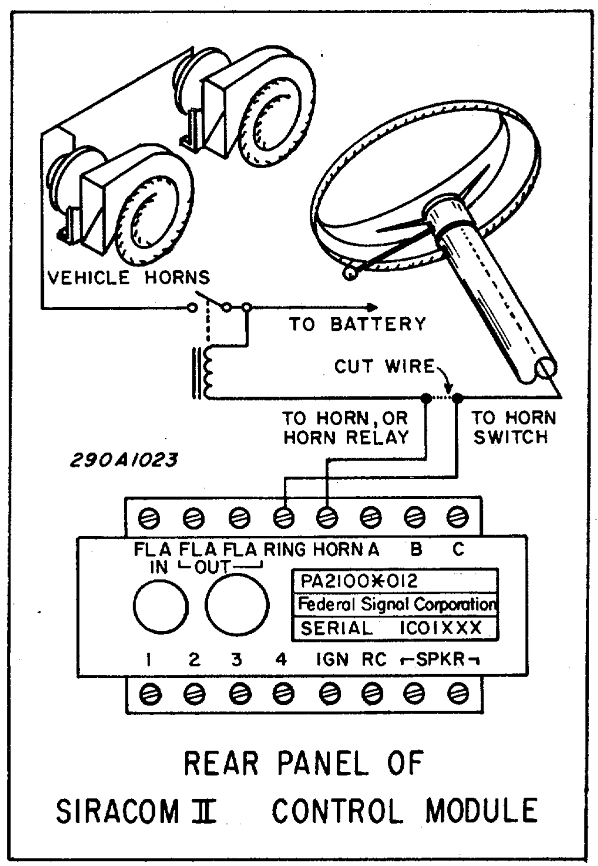


Figure 3-7. Horn Ring Connections.

B. If the two-way radio draws more than 10 amperes of current, install a 12V DC relay in the circuit, Connect one end of the relay coil to the RC terminal on the rear of the siren module. Ground the other end of the relay coil. Use the relay contacts to control power to the radio. See figure 3-8.

NOTE

FCC Rules and Regulations re- quire the use of a key-lock switch to control the power to a mobile transmitter. Therefore, wire the PA 2100 RC terminal to control power to the receiver only. Wiring to accomplish this type of control varies with the type of two-way radio. Refer to the radio manufacturer's service manual.

3-11. MASTER SWITCH.

Terminals 1,2, and 3, on the rear panel of the PA 2100 are controlled by the MASTER switch, Any combination of terminals can be controlled by a given position of the MASTER switch. The actual terminals con- trolled by a given position of the MASTER switch are programmed by means of the nine section miniature rocker switch inside of the Control Module. To make use of this capability, proceed as follows:

A. Connect the devices to be controlled by the MASTER switch, SW 401, to terminals 1, 2, or 3 on the rear of the unit (terminal 4 is not connected to SW 401). For example, flashing lights may be connected to terminal 1; rotating lights to terminal 2; and the optional flasher to terminal 3. If desired, several devices may be connected to a given terminal, provided that the 30 ampere cur- rent capacity of the terminal is not exceeded.

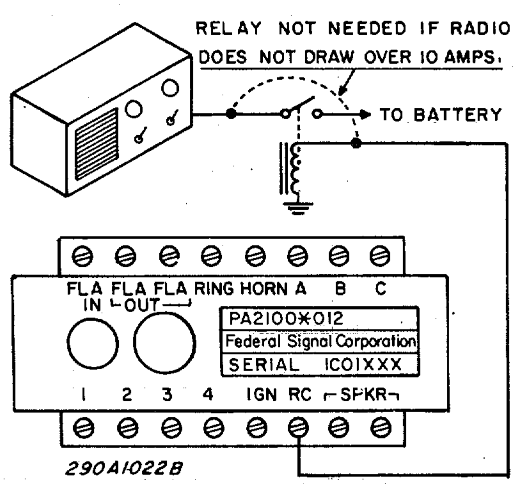


Figure 3-8. Radio Control Connections.

NOTE

The MASTER switch is programmed by means of the nine section miniature rocker switch., SW501. As shown in figure 3-9, each section of the switch is labeled to indicate the terminal and the MASTER position that it programs. ONE, TWO, and THREE. indicate the terminal programmed by each group of three switch sections. The numerals "1", "2", and "3" denote the MASTER position controlled by the individual rocker switch sections. For example, the closed contact of ONE-1 programs terminal 1 for MASTER Position 1, the ONE-2 contact programs terminal 1 for MASTER position 2; etc. Therefore, when ONE-1 is depressed, the device(s) connected to terminal 1 is (are) energized when the MASTER switch is set to position 1; when ONE-2 is depressed, the device(s) connected to terminal 2 is (are) energized in MASTER position 2; etc.

B. Determine which device(s) is(are) to be controlled by each MASTER switch position. Using the example in step A, it may be desired to activate the flashing lights in MASTER switch position 1, rotating lights in position 2, and all three devices in position 3.

To program the example described in steps A and B of this paragraph, close switches ONE-1 and ONE-3 to program terminal 1 (flashing lights) for MASTER positions 1 and 3, respectively. Close TWO-2 and TWO-3 to program terminal 2 (rotating lights) for positions 2 and 3 respectively. Close THREE-3 to program terminal 3 (optional flasher) for MASTER position 3 (see figure 3-9).

C. Remove the top cover of the chassis by loosening the hex head captive screws and sliding off the cover.

D. Program the MASTER switch by depressing the appropriate sections of SW501 with a pencil point or similar pointed tool, As indicated in figure 3-9, the switch contacts are closed when the upper half of. the rocker is pressed. Any combination of terminals can be controlled by any given MASTER switch position.

E. Replace the top cover on the chassis.

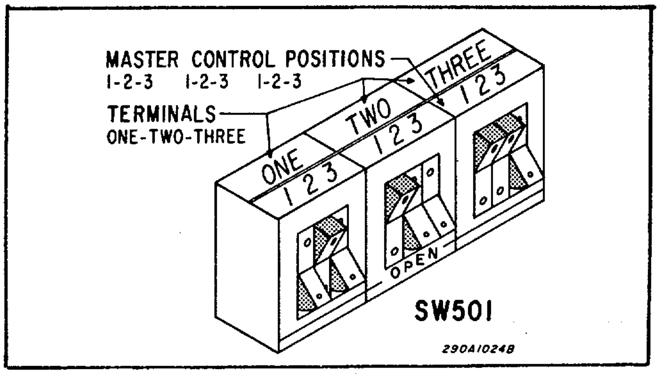


Figure 3-9. MASTER Switch Programming.

3-12. FLASHER OPTION.

Those sirens designated PA 2100*012F on the rear legend plate include the factory- installed Flasher option. If your siren is NOT designated PA 2100*012F, disregard the procedure in this paragraph.

The flasher circuitry has an On Over- ride and an Off Override feature. When a positive voltage is applied to terminal B, on the rear panel of the PA2100, the lamp(s) connected to the FLA OUT terminals are illuminated continuously, regardless of the voltage present at FLA IN. Conversely, a positive voltage at terminal A, on the rear panel, causes the lamp(s) connected to FLA OUT to be off continuously, regardless of the voltage present at FLA OUT or terminal B.

Figure 3-10 shows the wiring diagram of a typical headlight flashing circuit. This circuit is configured so that the flasher circuitry in the siren is defeated when the headlight switch is turned on.

A. Single Flasher Operation.

1. Connect a flasher control switch that is capable of controlling 12VDC such as a Control Module Accessory Switch or a MASTER CONTROL switch terminal, to the FLA IN terminal on the rear of the Control Module.

2. Connect the circuit to be flashed to the FLA OUT terminal closest to the FLA IN terminal.

B. Alternating Flasher Operation.

1. Connect a flasher control switch that is capable of controlling 12VDC, such as a Control Module Accessory Switch or a MASTER switch terminal, to the FLA IN terminal on the rear of the Control Module.

2. Connect the circuits to be alternated to the FLA OUT terminals, one circuit to each of the terminals.

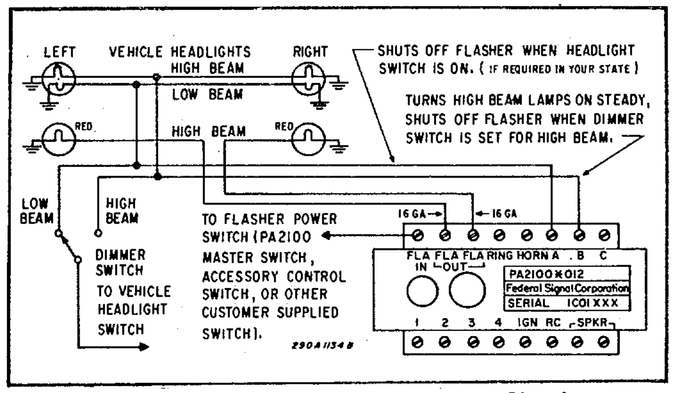


Figure 3-10. Typical Headlight Flashing Circuit.

3-13. RELATIVE PA LOUDNESS ADJUSTMENT.

After all of the electrical wiring to the PA2100 is complete, set the SELECTOR switch to PA. Depress the microphone push-to-talk switch, speak in a normal voice, and adjust the front panel GAIN control for the desired sound level outside the vehicle. Turn on the two-way radio and adjust the volume for a comfortable listening level inside the vehicle. Set the siren SELECTOR switch to RADIO. Stand outside of the vehicle and note the radio rebroadcast loudness. If it is too loud, or too soft, adjust R142, accessible through a hole in the top of the unit (see figure 3-11), for the desired level.

Clockwise rotation of R142 decreases the sound level. Counterclockwise rotation increases the sound level.

When this adjustment is completed the loudness of the radio rebroadcast and public address may be controlled with the front panel GAIN control.

Secure the PA2100 to the mounting bracket with 1/4 - 20 x 3/4" hex head screws and 1/4" split lockwashers. Tilt the PA 2100 to the desired position and tighten the 1/4 - 20 x 3/4" hex head screws.

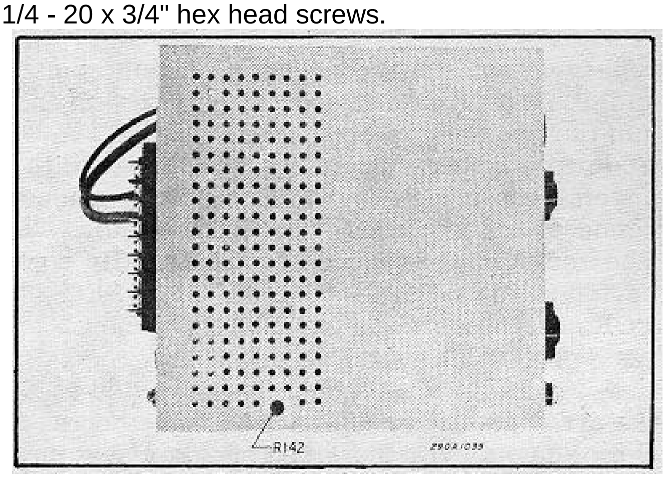


Figure 3-11. PA 2100 Top View.

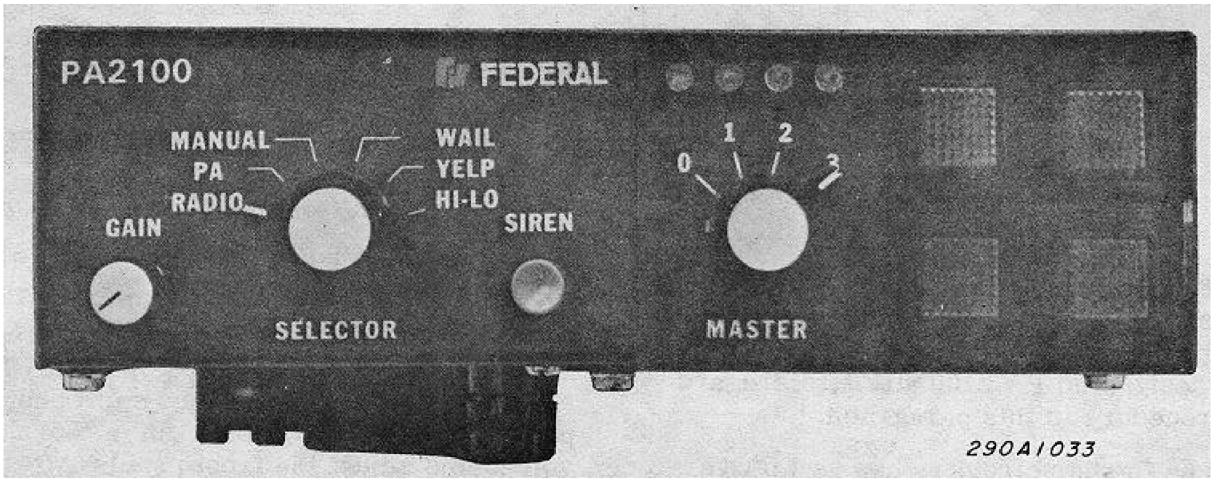


Figure 4-1. PA2100 Front View

4-1. GENERAL.

As shown in figure 4-1, all PA 2100 operating controls are located on the front panels of both the Siren Module and the Control Module.

A line of optional adapter modules allows the user the option of using either the siren's own microphone (PA override) or the two-way radio microphone (common microphone).

The optional Model MNCT Microphone and Model FN900 Adapter Module are required when PA override operation is used. When the siren is connected for PA override operation, the two-way radio and the siren each have their own separate microphones. In addition the public address is available in any -SELECTOR switch position, except RADIO, when the microphone push- to-talk switch is depressed.

In common microphone operation, the radio microphone is used for both the siren and the two-way radio in the vehicle. A Federal adapter module, that is designed to accommodate the two-way radio microphone connects-the siren directly to the radio. The common microphone is electrically connected to the two-way radio in all SELECTOR switch positions except PA. When the SELECTOR switch is set to PA, the two-way radio microphone is connected to the siren amplifier so that announcements can be made over the siren speaker system.

4-2. MASTER SWITCH.

The MASTER switch is a four position rotary switch that is used to control the vehicle's emergency warning light system and the electronic siren. The equipment controlled by a given MASTER switch position depends upon the configuration of the individual installation.

In a typical installation, secondary warning lights (flashing lights) are energized when the MASTER switch is set to position 1. Revolving lights are ordinarily installed so that they function in position 2. In position 3, the siren can be-activated when the siren's SELECTOR switch is set to one of the siren positions. In addition, any combination of warning lights that are activated in positions 1 or 2 or additional warning lights can be energized when the MASTER CONTROL is in position 3.

The MASTER switch position is indicated by three red LED'S (light emitting diodes) on the front panel of the Control Module. The "0" position of the switch is the "off" position and all of the LED'S are extinguished. When the MASTER switch is in position 1, one of the LED'S illuminate; in position 2, two LED'S are illuminated, and in position 3, all three LED'S illuminate.

If your installation was wired as - scribed in paragraph 3-9 of this manual, the horn ring activates the vehicle's horn when the MASTER switch is set to position 0, 1, or 2. However, when the MASTER switch

is set to position 3, the horn ring or other auxiliary switch operates the TAP II feature if the SELECTOR switch is set to WAIL, YELP or HI-LO. The TAP II feature is operated by actuating the auxiliary switch, causing the siren to "Yelp" until the auxiliary switch is operated again.

The Manual Wail signal is operational in all four MASTER switch positions provided that the SELECTOR switch is in the MANUAL position. When the MASTER switch is in positions 1 or 2, and the SIREN switch, SW201, is depressed, the siren sounds until SW201 is released. When SW201 is released, the siren signal ceases immediately. The operation of the Manual Wail signal when the MASTER switch is in position 3 is similar except that when SW201 is released, the frequency of the siren signal "coasts down" to approximately 550Hz before it ceases.

If your installation has been wired as described in paragraph 3-8,power is applied to the two-way radio whenever the vehicle ignition switch is on. In addition, the front panel of the PA 2100 is illuminated and the green LED above the MASTER switch is lit, indicating that power is applied to the siren.

4-3. GAIN CONTROL.

The GAIN control controls the loudness of the sound output from the siren speaker(s) when the siren is being used as a public address or radio rebroadcast amplifier. Clockwise rotation of the GAIN control increases the sound level from the speaker. The GAIN control does not control the volume of the siren.

The maximum usable setting of the GAIN control is determined by the setting of the control where feedback or "squeal" occurs. The sound level at which "squeal" occurs depends upon microphone gain, speaker placement, the proximity of reflective surfaces, etc. Adjust the GAIN control to the position just below the point at which feedback occurs, or as desired.

4-4. SELECTOR SWITCH.

The SELECTOR switch is a six-position rotary switch that selects the siren function. The following describes the six positions of the SELECTOR switch:

A. RADIO

When the SELECTOR is in this position, incoming radio messages are amplified by the siren amplifier and rebroadcast over the siren speaker system. Volume is controlled by the GAIN control. An LED indicator illuminates to indicate that the SELECTOR switch is set to RADIO. If the system is wired as described in paragraph 3-8, power is always supplied to the two-way radio, even if the ignition switch is off.

B. PA

When the SELECTOR is set to the PA position, the siren amplifier may be used as a public address amplifier. In those installations where the siren and the two- way radio share the same microphone, the PA position is the only SELECTOR switch position that connects the microphone to the siren amplifier.

C. MANUAL

This position of the SELECTOR switch allows operation of the siren with the front panel SIREN pushbutton switch. The siren can also be activated by means of an auxiliary switch, such as a foot switch or horn ring switch.

D. WAIL

In this position the siren produces a continuous "wailing" sound, up and down in frequency.

E. YELP

This position of the SELECTOR switch causes the siren to produce a rapid "warbled" tone.

F. HI-LO

In this switch position the siren produces a two-tone signal. This distinctive signal may be reserved for any special indication or situation.

4-5. SIREN BUTTON.

The SIREN button activates the siren when the SELECTOR switch is set to the MANUAL position.

SECTION V
SIREN MODULE CIRCUIT DESCRIPTION

5-1. GENERAL.

Refer to the Siren Module Functional Block Diagram, figure 5-1, and the Siren Module Schematic Diagram, figure 6-6, while reading the following paragraphs.

5-2. TONE CONTROL OSCILLATOR.

A. General

When the SELECTOR switch, SW301, is set to the WAIL, YELP, or HI- LO position, IC101 and IC102 control the siren tone output. The control voltage generated by IC102 controls the output frequency of the VCO (voltage controlled oscillator).

B. WAIL

When SW301 is set to WAIL, the Wail tone control voltage is initiated by IC102. IC102 is basically a timing circuit whose output voltage levels are used to control the charge and discharge of timing capacitor, C106. C106 charges through CR104 and R106 until it reaches IC102's threshold voltage (approximately 6.9 volts). When the voltage on C106 and IC102-6 reaches approximately 6.9 volts, IC102 changes states and C106 discharges through R126, R127 and R128. When the voltage on C106 reaches the trigger voltage of IC102 (approximately 3. 5V), IC102 again changes states and the cycle repeats. The WAIL control voltage at IC102-6 is then applied to Emitter Follower, Q101 and to the Scaling Amplifier, IC103B.

The Scaling Amplifier expands (scales) and inverts the control voltage waveform at the emitter of Q101 to the level necessary to control the Voltage Controlled Oscillator (VCO) without significantly affecting the shape of waveform. The gain of IC103B is determined by R113 and R116. The scaled control voltage waveform at IC103B-1 is coupled through CR108 to the VCO Control Point, IC104-5.

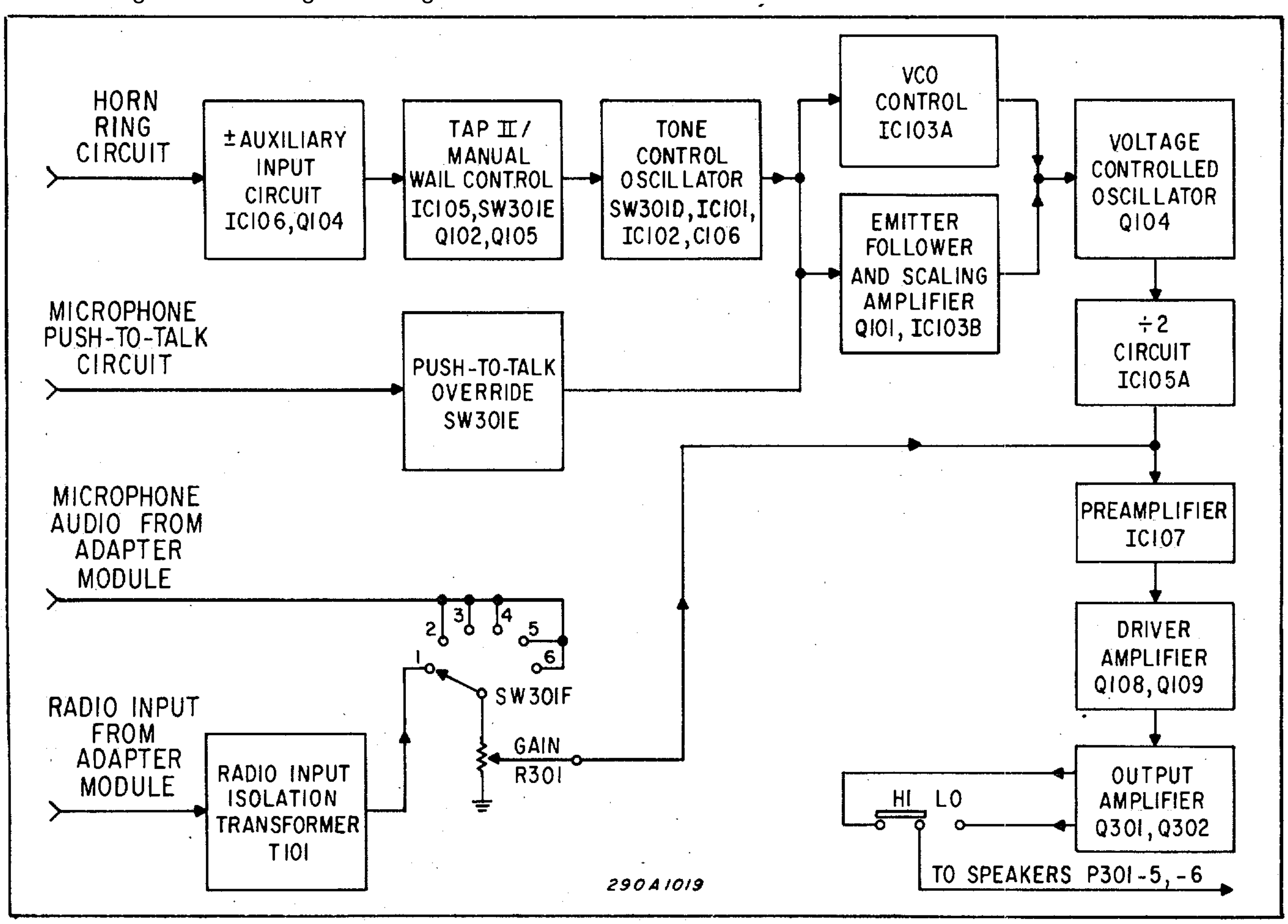


Figure 5-1. Siren Module Functional Block Diagram.

The output signal from the Voltage Controlled Oscillator, IC104, is a series of pulses whose frequency is determined by R119, R120, C105 and the control voltage at the VCO control point, IC104-5. As the control voltage at IC104-5 increases, the frequency of the output of IC104 decreases. Conversely as the control voltage decreases the output frequency increases. The output signal from IC1043 is applied to the ö 2 Circuit at IC105A-13.

The ö 2 Circuit, IC105A, is a toggle flip-flop that divides the pulse frequency by 2. The symmetrical output from this circuit is present at IC105A-15.

When the siren operator turns off the WAIL tone, the timing capacitor, C106 be- gins discharging toward zero volts. However, C106 is connected through CR105 and R109 to the regulated supply of Q101. As a result, C106 does not completely discharge to zero volts. Consequently, the residual charge on C106 is applied to Q101 and IC103B, applying a constant level control voltage to IC104-5. Simultaneously, Q101 also applies a sample of the voltage on C106 to the VCO Control Point, IC103A-5. When the voltage at IC103A-5 becomes less positive than the fixed voltage at IC103A-6, IC103A-7 goes low. This low resets the ö 2 Circuit, preventing the constant level control voltage at IC 104-5 from allowing the VCO to generate an annoying and false constant frequency tone.

C. YELP.

When SW301 is set to YELP, the operation of the circuitry is similar to WAIL, except that C106 charges through CR106 and R104 and discharges through R126 and IClO1C. The charge and discharge rate of C106 is more rapid in YELP than in WAIL. Consequently, the control voltage variations and the resultant tone frequency variations are more rapid in YELP than in WAIL.

D. HI-LO.

In HI-LO, C106 charges through CR104 and R105 and discharges through R126, R127 and IC101D, producing a symmetrical square wave at IC102-3. When the voltage at IC102-3 is high, the VCO control voltage developed by R102 and R118 and is applied directly to the VCO control point, IC104-5. When IC102-3 is low the voltage at IC104-5 is determined by R102, R103, and R118.

5-3. ± AUXILIARY INPUT.

The ñ Auxiliary Input circuit consists of CR110, CR111, Q104, IC106, and associated components. This circuit allows the Manual Wail and TAP II circuits to respond to the vehicle's horn ring or other auxiliary switch without regard to polarity when the MASTER switch is set to position 3.

In the off state, Q104 is biased off, causing a low to be present at IC106-3. If a negative horn ring circuit is used to trigger the ñ Auxiliary Input Circuit, depressing the horn ring applies a negative (ground) potential to the cathode of CR111, allowing CR111 to conduct. The conduction of CR111 brings Q104 into conduction, causing IC106 to turn on and produce a high at IC106-3. This high remains at IC106-3 for the entire time that the horn ring is depressed, plus approximately 200 millisecond after the horn ring is released. The high at IC101-3 is applied to IC102, allowing the Tone Control Oscillator to operate as previously described.

If a positive horn ring circuit is used to activate the ñ Auxiliary Circuit, the operation of the circuit is similar. When the horn ring is depressed, the positive voltage (+14VDC) causes CR110 to conduct so that a positive voltage is applied to the base of Q104, bringing Q104 into conduction. Q104 then activates IC106 and the circuitry operates as previously described.

5-4. MANUAL WAIL AND TAP II.

The SIREN switch, SW201, can operate the Manual Wail signal whenever the SELECTOR switch is set to MANUAL. The Manual Wail signal can also be activated by the horn ring or other auxiliary switch when the MASTER switch is set to position 3.

When SW201 is depressed, the base of Q107 is grounded through R157 and CR207, turning on Q107. The conduction of Q107 simultaneously turns on Q106, Q103, and Pre- amplifier IC107. The conduction of Q103 allows the Tone Control Oscillator to begin

generating a Wail signal. The conduction of Q106 turns on the Driver Amplifier, Q108 and Q109.

As described in paragraph 5-3, if the MASTER switch on the Control Module is set to position 3, the ñ Auxiliary Input circuit can activate the Manual Wail signal.

TAP II operation is accomplished by the ñ Auxiliary Input circuit in conjunction with IC105 and IC106. When an input is applied to the ñ Auxiliary Input, IC106 applies a positive pulse to IC105-3 causing IC105-1 to be grounded. This ground is applied through R122 to Q102, bringing Q102 into conduction. The conduction of Q102 applies positive voltage to CR103 and R104 to start the Yelp signal. The positive voltage from Q102 also turns on IC101C. IC101C, acts as part of the discharge path for C106.

The Yelp signal continues until the + Auxiliary Input circuit causes IC106 to produce another positive pulse at IC105-3. As a result, the voltage at IC105-1 returns to its high level, turning off Q102, and normal siren operation resumes.

IC105-7 is held at ground potential for TAP II operation. However, when the SELECTOR switch, SW301, is set to RADIO, PA, or MANUAL, TAP II operation is not required. Therefore, to prevent the operation of the TAP II circuitry when SW301 is set to RADIO, PA, or MANUAL, IC105 is held reset by the application of the positive supply voltage to IC105-7. IC105-7 is also held positive between switch positions so that IC105 is held reset as the position of SW301 is changed.

5-5. PREAMPLIFIER AND AMPLIFIER STAG ES.

All siren and audio signals are applied to the Preamplifier, IC107. Siren signals are applied through C114 and R147 to IC107-6. Audio signals from the microphone or radio are coupled through C115 and R145 to IC107-2. The amplified output at IC107-8 is coupled through C118 to the primary of T102. The secondary of T102 applies a push-pull input to the Driver Amplifier Q108 and Q109. The collectors of this stage are coupled to the output Amplifier, Q301 and Q302. The output of Q301 and Q302 is coupled through T301 and P301-5 and 6 to the siren speaker(s). The HI/LO switch, SW302, is set to HI when a 200 watt speaker or 100 watt speakers are connected to the siren. SW302 is set to LO when 58 watt speakers are used.

5-6. PUSH-TO-TALK OVERRIDE.

When the siren and the two-way radio each have separate microphones, the siren is set for PA override operation. The PA override feature allows the siren operator to use the siren as a public address amplifier when the SELECTOR switch is set to any position except RADIO.

When the operator depresses the microphone push-to-talk switch, the Push-To- Talk Line is grounded. This ground potential is applied through ,SW301 to IC301A and through Q101 to IC1031B. In addition, the ground potential is also applied to the Timing Capacitor, C106, preventing it from alternately charging and discharging. As a result, siren tone generation ceases, allow- ing microphone audio to be amplified by the Preamplifier and Amplifier stages.

5-7. ALTERNATING FLASHER.

The optional Alternating Flasher is located on a printed circuit board in the Control Module. The schematic diagram of this circuit is shown in figure 6-12.

The Alternating Flasher is basically an astable multivibrator that operates at a nominal rate of 90 cycles per minute.

SECTION VI
SERVICE AND MAINTENANCE

6-1. GENERAL.

Most of the electronic component parts used in the PA2100 are standard items that are available from almost any radio or electronics supply outlet.

The factory can and will service your equipment or provide technical assistance with problems that cannot be handled satisfactorily and promptly locally.

Address all communications and shipments to:

Service Department
Signal Division
Federal Signal Corporation
136th and Western Avenue
Blue Island, Illinois 60406

If any unit is returned for adjustment or repair, it can be accepted only if we are notified by mail or phone in advance of its arrival. Such notice should clearly indicate the service requested and give all pertinent information regarding the nature of the malfunction and, if possible, its cause.

The following diagrams are provided to assist repair personnel when service to the equipment is required.

6-2. SIREN MODULE.

A. General

Any competent electronic technician should have little difficulty in tracing and correcting a malfunction. When trouble- shooting the PA2100 Table 6-1 may be useful for isolating a malfunction.

When replacing small components, use care when soldering. Heat easily damages integrated circuits, transistors, capacitors and circuit boards. Therefore, it is advisable to use longnose pliers or similar heat sink on the component lead being soldered.

When replacing the Driver Amplifier transistors, Q108 and Q109, or the Output Amplifier transistors, Q301 and Q302, insure that a matched pair is used. In addition, always replace the mica insulators. Use heat sink compound on both sides of the mica insulators and ensure that they are properly installed. Improper installation of the insulator could cause a short circuit.

Always adjust the symmetry of the output waveform when Q108 and Q109 or Q301 and Q302 are replaced. To perform this adjustment, disconnect the speaker(s) and connect a 5.5 ohm 200 watt dummy load across the speaker terminals. Connect an oscilloscope across the dummy load and activate the Yelp signal. Adjust R158 for the best possible square wave. See figure 6-2 for the location of R158.

B. Removal for Servicing.

The Siren Module is easily removed from the PA2100 chassis. To remove the Siren Module, loosen two of the hex head screws on the bottom of the unit, and slide the Siren Module out (see figure 6-7).

C. Circuit Board Removal.

1. To remove the Main Circuit Board remove the three screws that hold the board in the Siren (see figure 6-2). Disconnect the socket at the rear of the board and lift the board out of the module. When replacing the Main Circuit Board, align the socket at the

rear so that the color dot on the socket is adjacent to the color dot on the circuit board. Also be sure that the two plugs on the front of the circuit board mate properly with sockets on the Front Circuit Board.

2. To remove the Front Circuit Board, remove the Main Circuit Board as described in subparagraph 6-2. C.1. Loosen all control knob set screws and slide the knobs from their control shafts. Remove the spanner nuts that hold the SELECTOR and the GAIN control to the front panel of the module. Remove the screw that holds the siren button bracket in place (see figure 6-7) and lift out the Front Circuit Board.

6-3. CONTROL MODULE.

To gain access to the interior of the Control Module, loosen two hex head screws on the bottom of the PA2100 (see figure 6-7). Slide cover off the unit.

Most of the circuitry in the Control Module is used to control power to vehicle accessories. Therefore, if a malfunction occurs in a given circuit the problem is probably external to the Control Module. However, before troubleshooting the external circuitry always be sure that rear panel of the Control Module is properly wired.

If a malfunctioning device is controlled by the MASTER switch, SW401, make sure that SW401 is properly programmed by the nine section miniature :rocker switch, SW 501 (refer to paragraph 3-11).

To remove the Control Module from the PA2100 housing, it is only necessary to loosen one hex head screw (see figure 6-7).

If optional accessory switches are installed to control other vehicle accessories always check the switches for proper operation before troubleshooting the external de- vices.

The optional Alternating Flasher operates by use of electronic circuitry. If this circuitry fails, see the schematic diagram figure 6-12 and the parts location dia- gram figure 6-13.

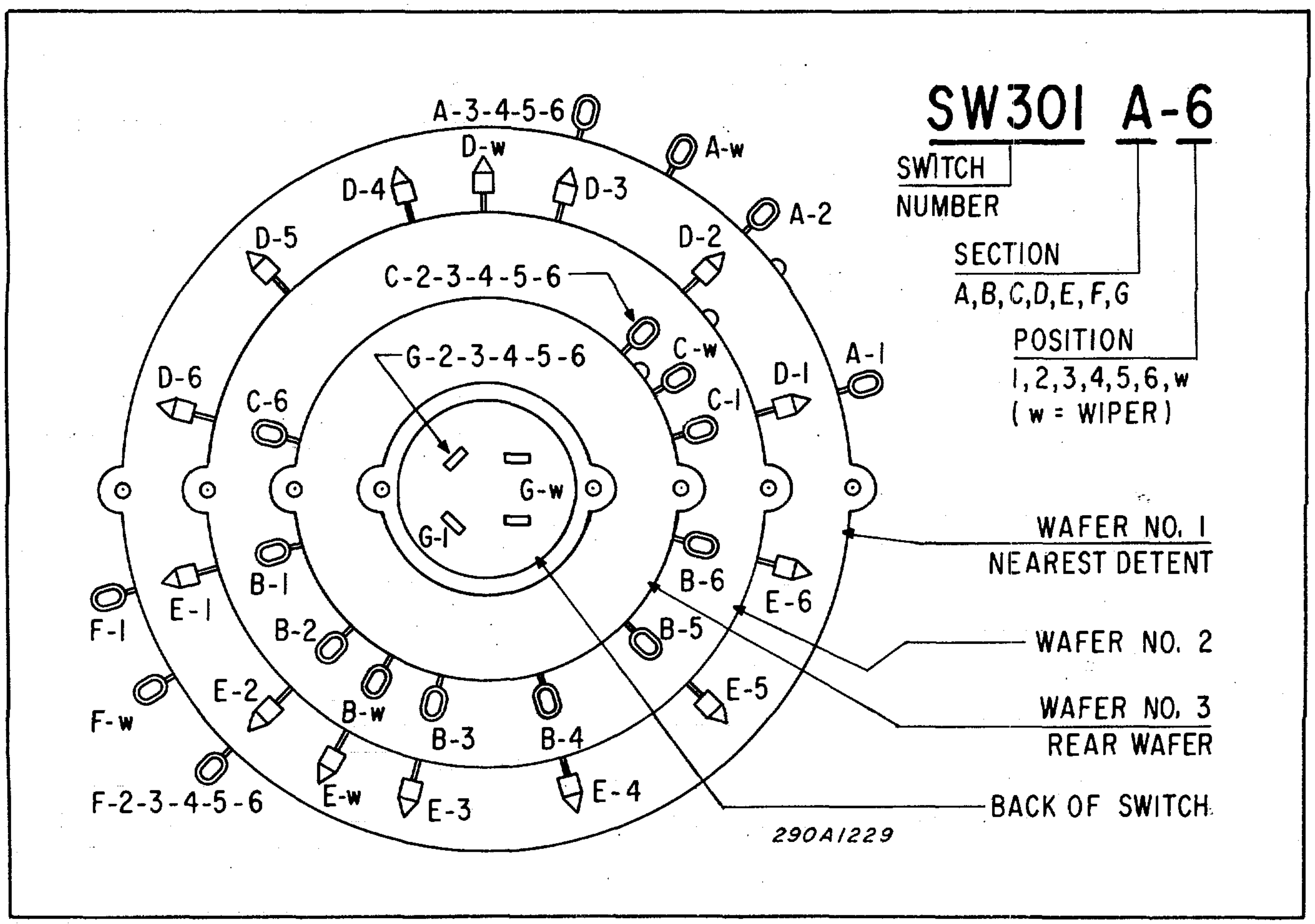


Figure 6-1. MASTER Switch Diagram.

Table 6-1 lists voltages and waveforms, that appear on the integrated circuits and transistors in the PA2100 when the SELECTOR switch is set to its various positions. Abbreviations are used to describe the SELECTOR position. These abbreviations and their meanings are as follows:

R	=	RADIO	W = -WAIL
P	=	PA	Y = YELP
M	=	MANUAL	H = HI-LO

Table 6-1. PA2100 Voltages and Waveforms.

When a waveform is present at a given point, the waveform is listed by a capital letter, its cycle rate and its peak-to-peak voltage. For example, the wave- form at IC101-3 is listed as A/45-55, 1. Therefore, when an oscilloscope is connected to IC101-3, waveform A having a cycle rate of 45-55 cycles per minute (or Hz, if specified) and a nominal amplitude of 1 volt peak-to-peak (Var. = varying) should be observed. All waveforms are illustrated at the end of this table.

IC101

Pin	SELECTOR Position	Voltage or Waveform
1	All	10.5VDC
2	H	10.5VDC
3,4	H	A/45-55,1
5	H	10VDC
6	H	10VDC
8	H	OV
11	Y	OV
12	Y	10.5VDC
13	H	10.5VDC
14	All	10.5VDC

IC102

Pin	SELECTOR Position	Voltage or Waveform
2,6	W	B/10,3
2,6	Y	B/160-190,3
2,6	H	B/45-55,3
3	W	A/109.8
3	Y	A/160-190,9.8
3	H	A/45-55,9.8
4	All	10.5VDC
5	All	7VDC
7	W	C/10,7
7	Y	C/160-190,7
7	H	C/45-55,7
8	All	10.5VDC
2	M	1.9VDC
6	M	1.9VDC
7	M	OV

IC103

1	W,Y	B/10,2.8
2	H	10.5VDC
3	All	5.25VDC
5	W	B/10,3
5	Y	B/160-190,3
5	H	B/45-55,3
6	All	2.7VDC
7	W,Y,H	9.0VDC, min.
7	M,P,R	0.5VDC
8	All	10.5VDC

IC104

2,6	W,Y,H	C/1000-3000Hz, Var.
3	W,Y,H	D/1000-3000Hz,9.8
4	All	10.5VDC
5	W	B/10,3
5	Y	B/160-190,3
5	H	A/45-55, 0.9
7	W,Y,H	E/1000,3000Hz.Var.
8	All	10.5VDC

IC105

Pin	SELECTOR Position	Voltage or Waveform
1	All	10.5VDC
3	All	OV
5	All	10.5VDC
6	All	10.5VDC
7	W,Y,H	OV
7	M,P,R	10.5VDC
10	W,Y,H	9.0VDC
10	M,P,R	0.5VDC
11	W,Y,H	9.0VDC
11	M,P,R	0.5VDC
12	All	1.0VDC max.
13	W,Y,H	D/1000-3000Hz,10
15	W,Y,H	A/500-1500Hz,10.5
16	All	10.5VDC

IC106

Pin	SELECTOR Position	Voltage or Waveform
2	All	10.0VDC
3	All	OV
4	All	10.5VDC
5	All	7.0VDC
6	All	OV
7	All	OV
8	All	10.5VDC

IC107

Pin	SELECTOR Position	Voltage or Waveform
1	All	6.3VDC
8	W,Y,H	F/500-1500Hz,10
8	P,R	G/1000Hz, 1.8
14	All	13.6VDC

Q101

Pin	SELECTOR Position	Voltage or Waveform
B,E	W	B/10,3
B,E	Y	B/160-190,3
B,E	H	B/45-55,3
B,E	P,R	1.5VDC
B,E	M	1.9VDC
C	All	10.5VDC

Q103

Pin	SELECTOR Position	Voltage or Waveform
B	All	11.0VDC
E	All	10.5VDC
C	All	13.6VDC

Q106

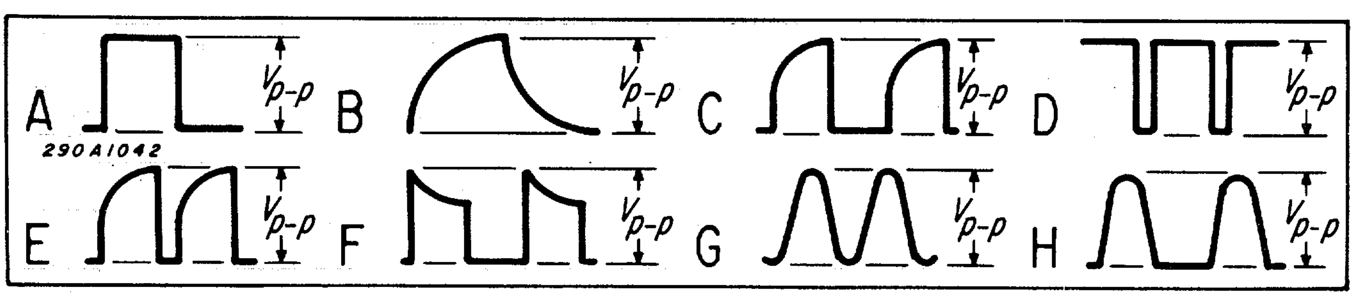
Pin	SELECTOR Position	Voltage or Waveform
B	All	0.7VDC
E	All	OV
C	All	0.3VDC

Q108,109

Pin	SELECTOR Position	Voltage or Waveform
B	W,Y,H	A/500-1500Hz,30
B	P,R	G/1000Hz,5
E	W,Y,H	A/500-1500Hz,23
E	P,R	G/1000Hz,5
C	W,Y,H	A/500-1500Hz,1.5
C	P,R	H/1000Hz,0.8

Q107

Pin	SELECTOR Position	Voltage or Waveform
B	All	12.9VDC
E	All	13.6VDC
C	All	13.5VDC



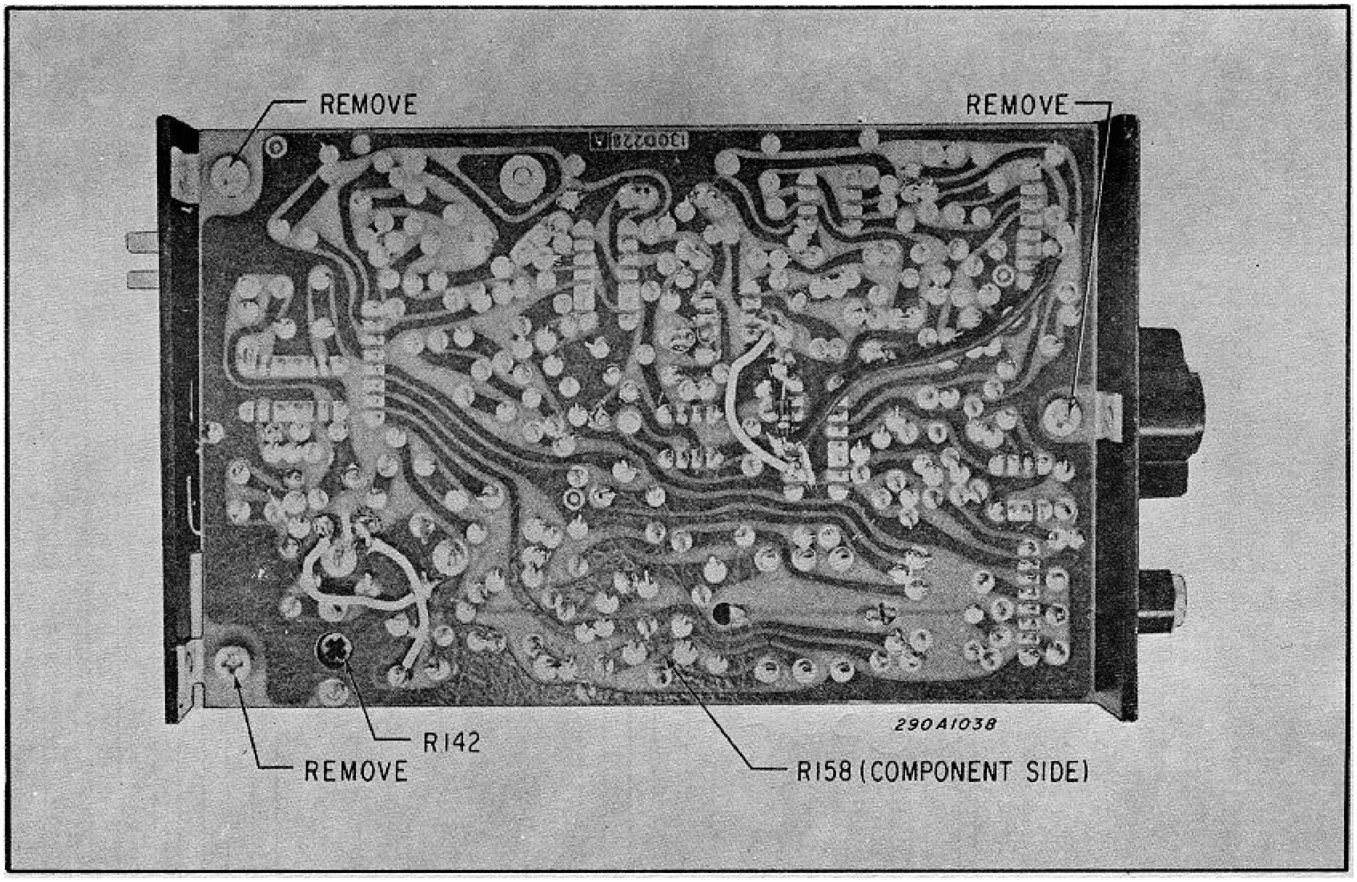


Figure 6-2. Siren Module Printed Circuit Board Removal.

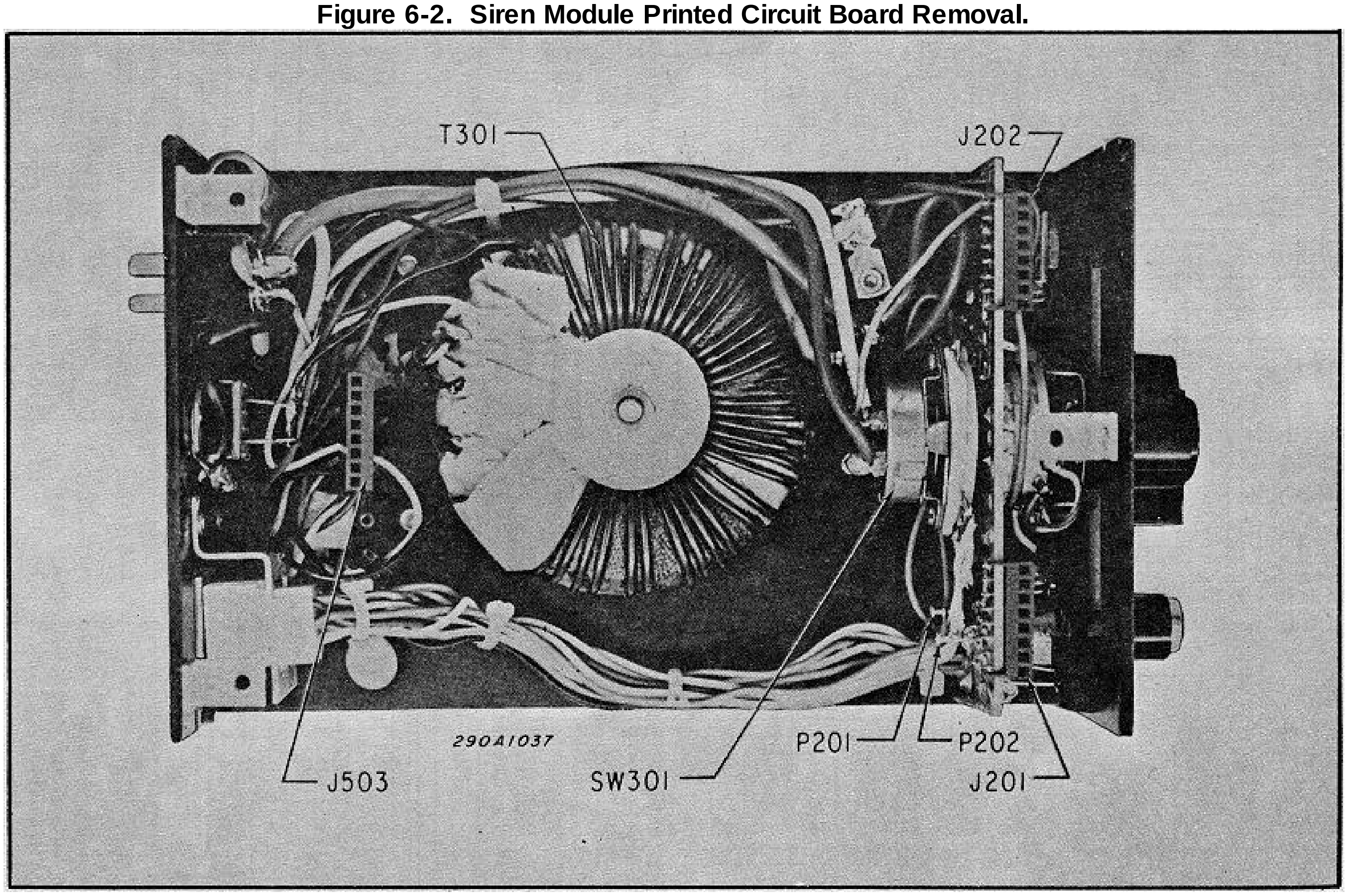
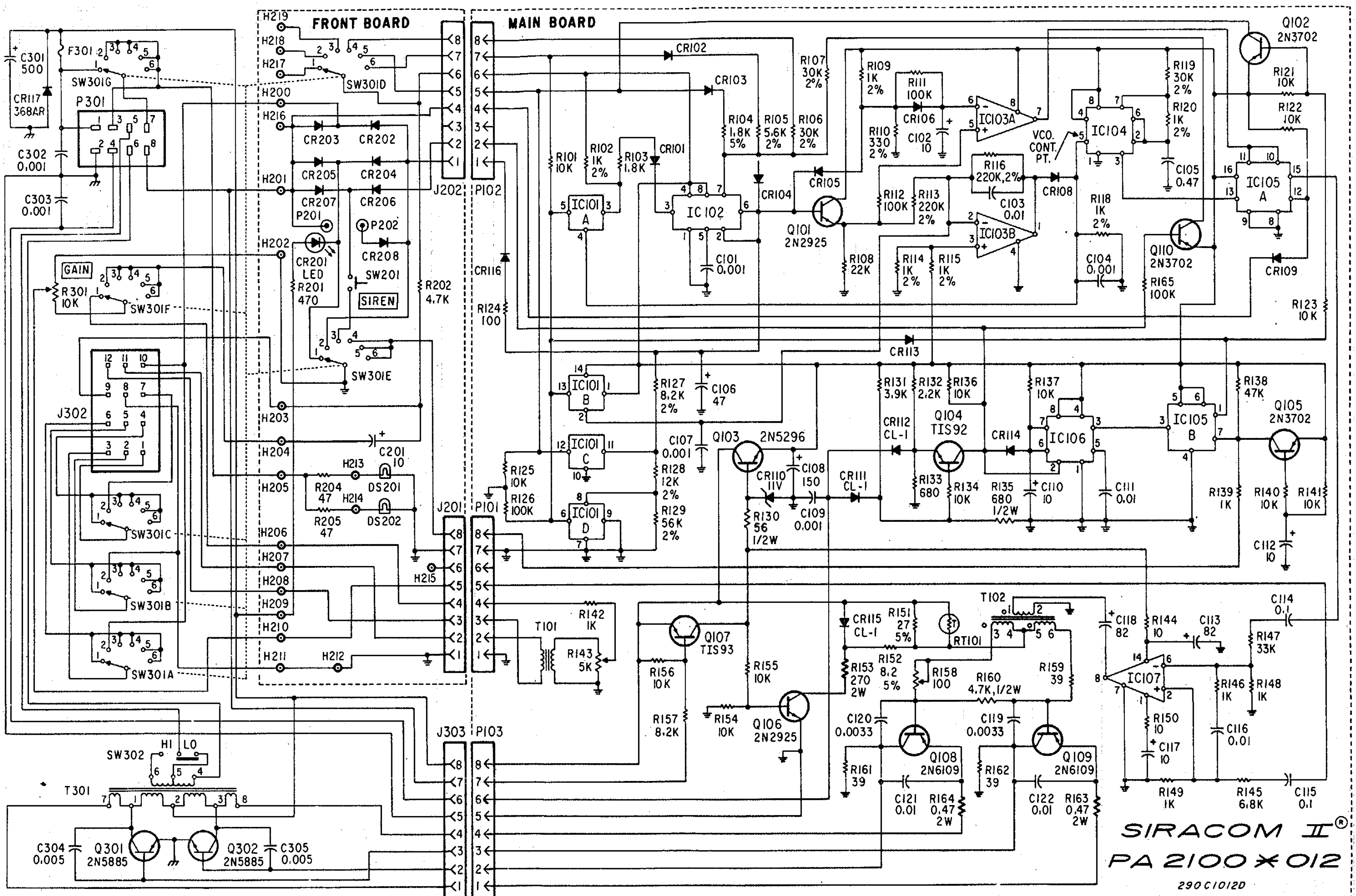


Figure 6-3. Siren Module Internal View.



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   ALL RESISTORS ARE IN OHMS, K=1000, ±10%, 1/4 WATT.
   ALL CAPACITORS ARE IN MICROFARADS (UF).
   ALL DIODES ARE TI-51.
2. ⏚ INDICATES PRINTED CIRCUIT BOARD GROUND.
   ⫛ INDICATES CHASSIS GROUND.

SW301 SWITCH POSITIONS

1	RADIO	4	WAIL
2	PA	5	YELP
3	MANUAL	6	HI-LO

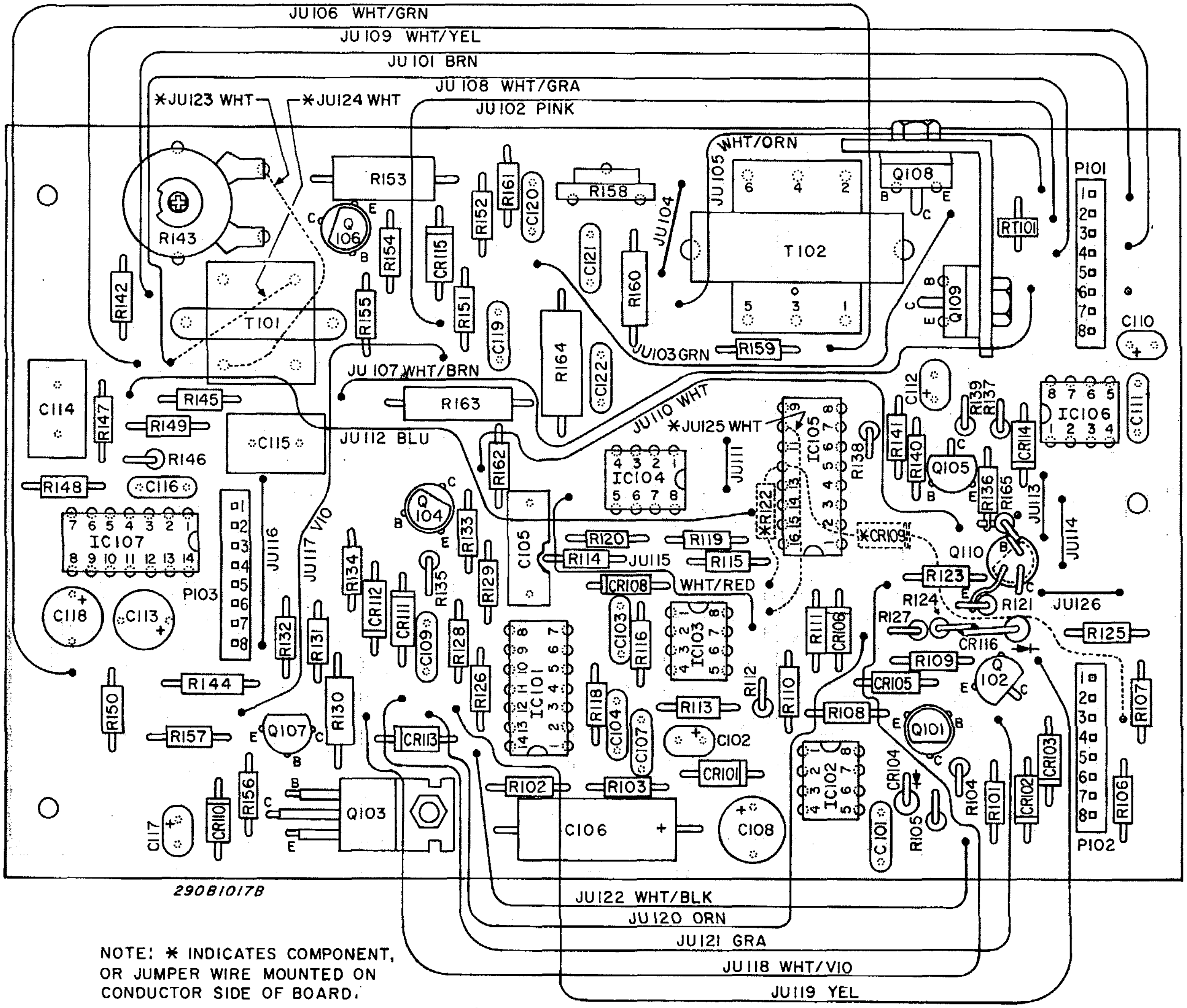
P301

PIN	FUNCTION	PIN	FUNCTION
1	8+ INPUT	5	SPEAKER OUTPUT
2	B− INPUT	6	SPEAKER OUTPUT
3	LAMP	7	RADIO CONTROL
4	+/− AUXILIARY	8	MASTER CONTROL

J302

PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION
1	MIKE HI INPUT	5	MIKE LOW OUTPUT	9	MIKE AUDIO (TO AMP.)
2	MIKE LO INPUT	6	MIKE P.T.T. OUTPUT	10	P.T.T. INPUT
3	MIKE P.T.T. INPUT	7	PA OUTPUT	11	RADIO INPUT
4	MIKE HI OUTPUT	8	GROUND	12	RADIO INPUT

Figure 6-4. Siren Module Schematic Diagram



NOTE: * INDICATES COMPONENT, OR JUMPER WIRE MOUNTED ON CONDUCTOR SIDE OF BOARD.

Figure 6-5. Siren Module Main Circuit Board Parts Location Diagram.

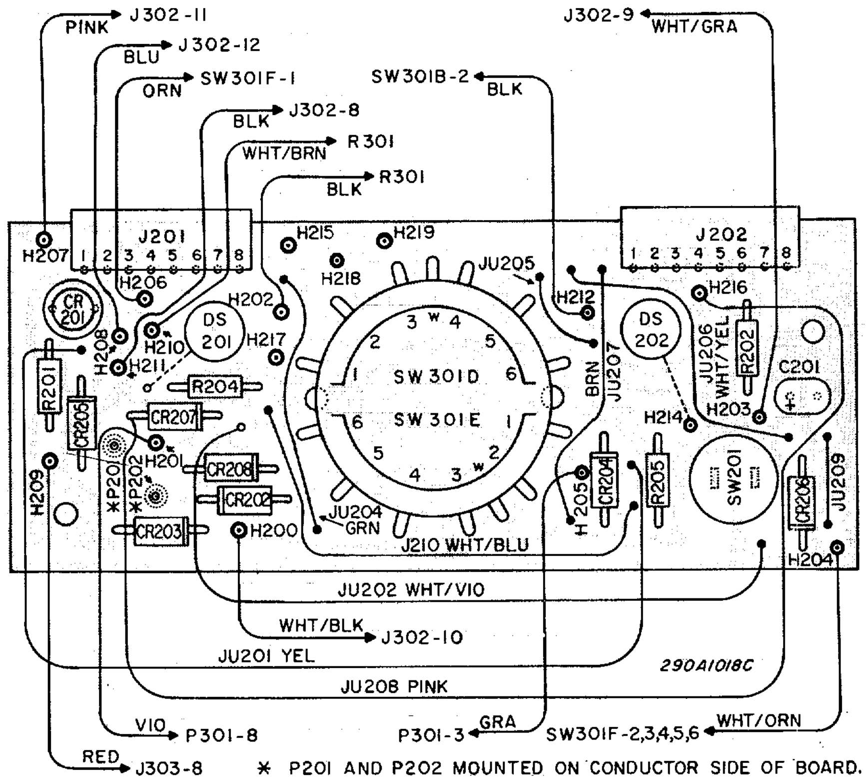


Figure 6-6. Siren Module Front Circuit Board Parts Location Diagram

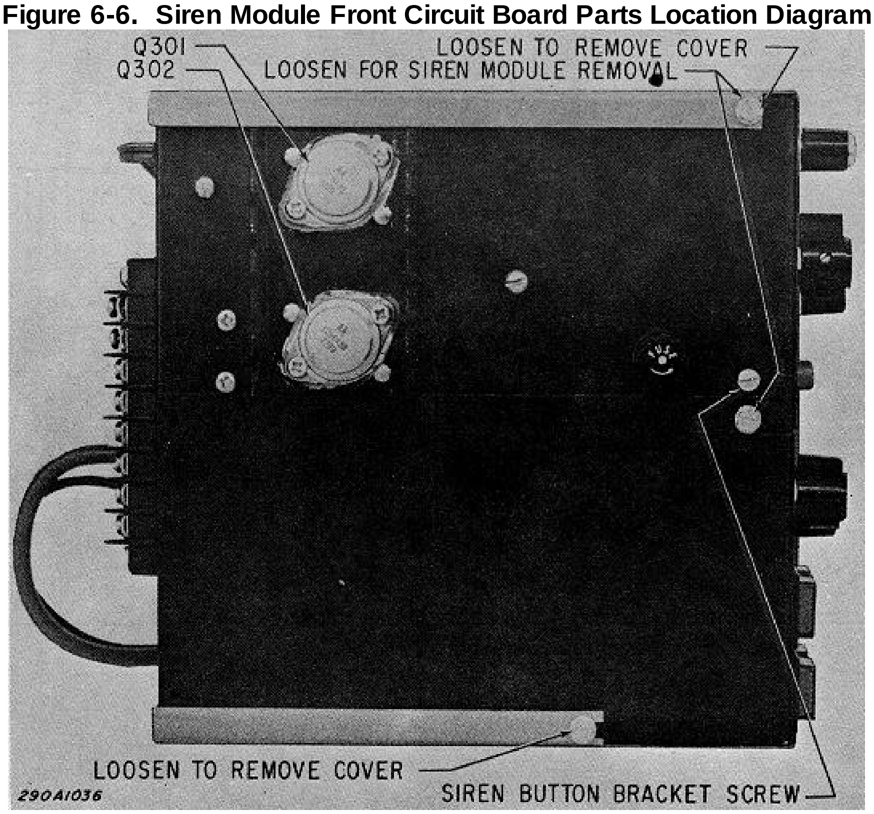


Figure 6-7. PA2100 Bottom View.

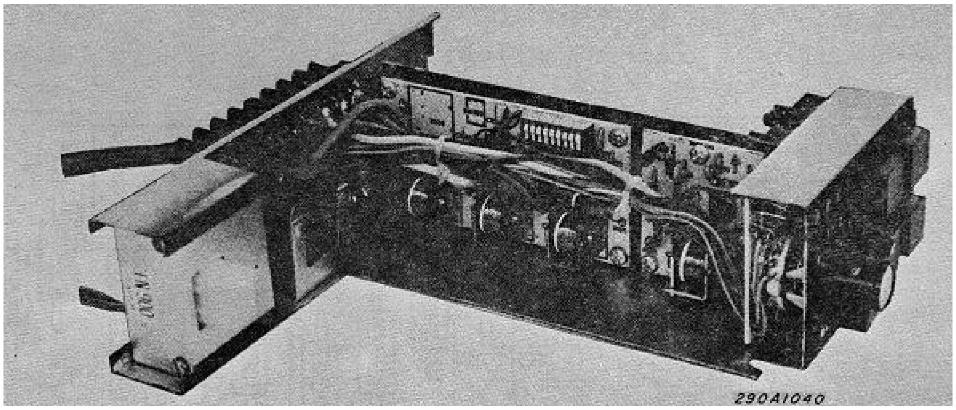


Figure 6-8. Control Module Internal View.

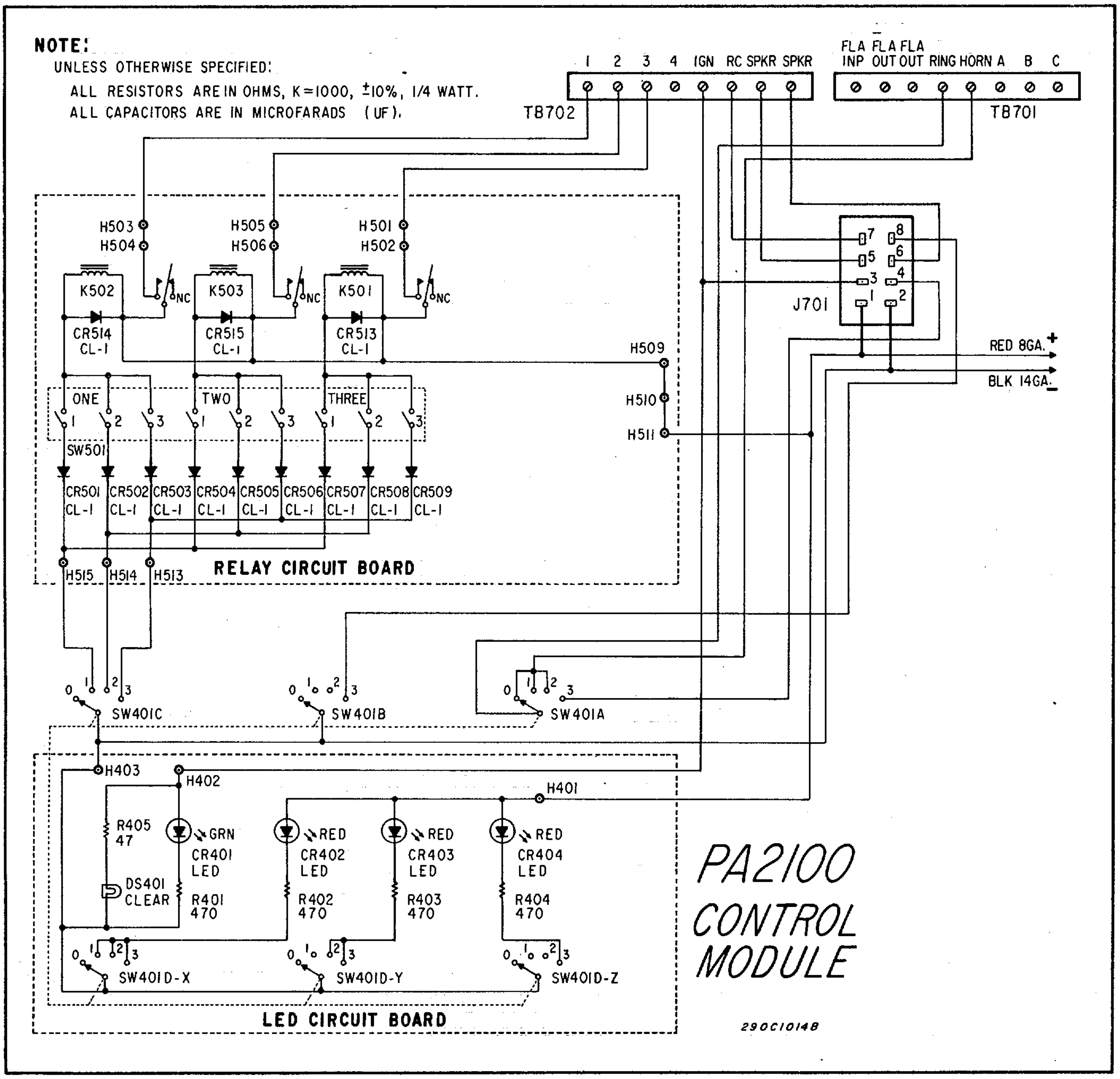


Figure 6-9. Control Module Schematic Diagram.

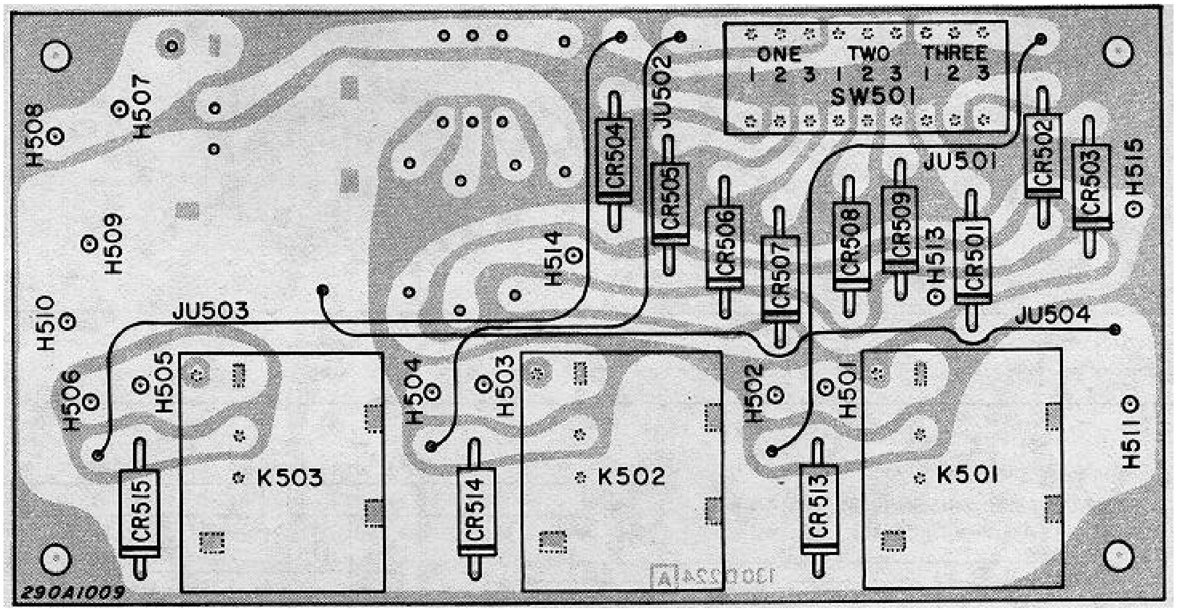


Figure 6-10. Control Module Relay Circuit Board Parts Location Diagram.

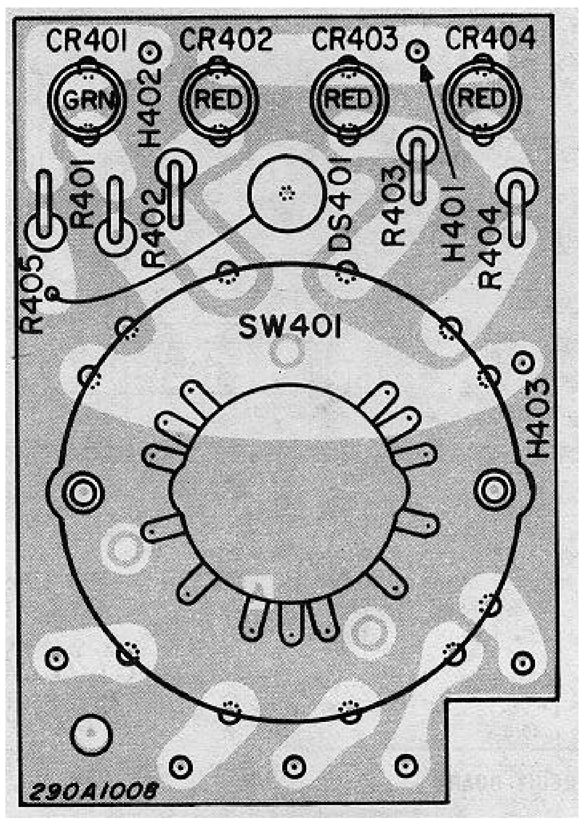


Figure 6-11. Control Module LED Circuit Board Parts Location Diagram.

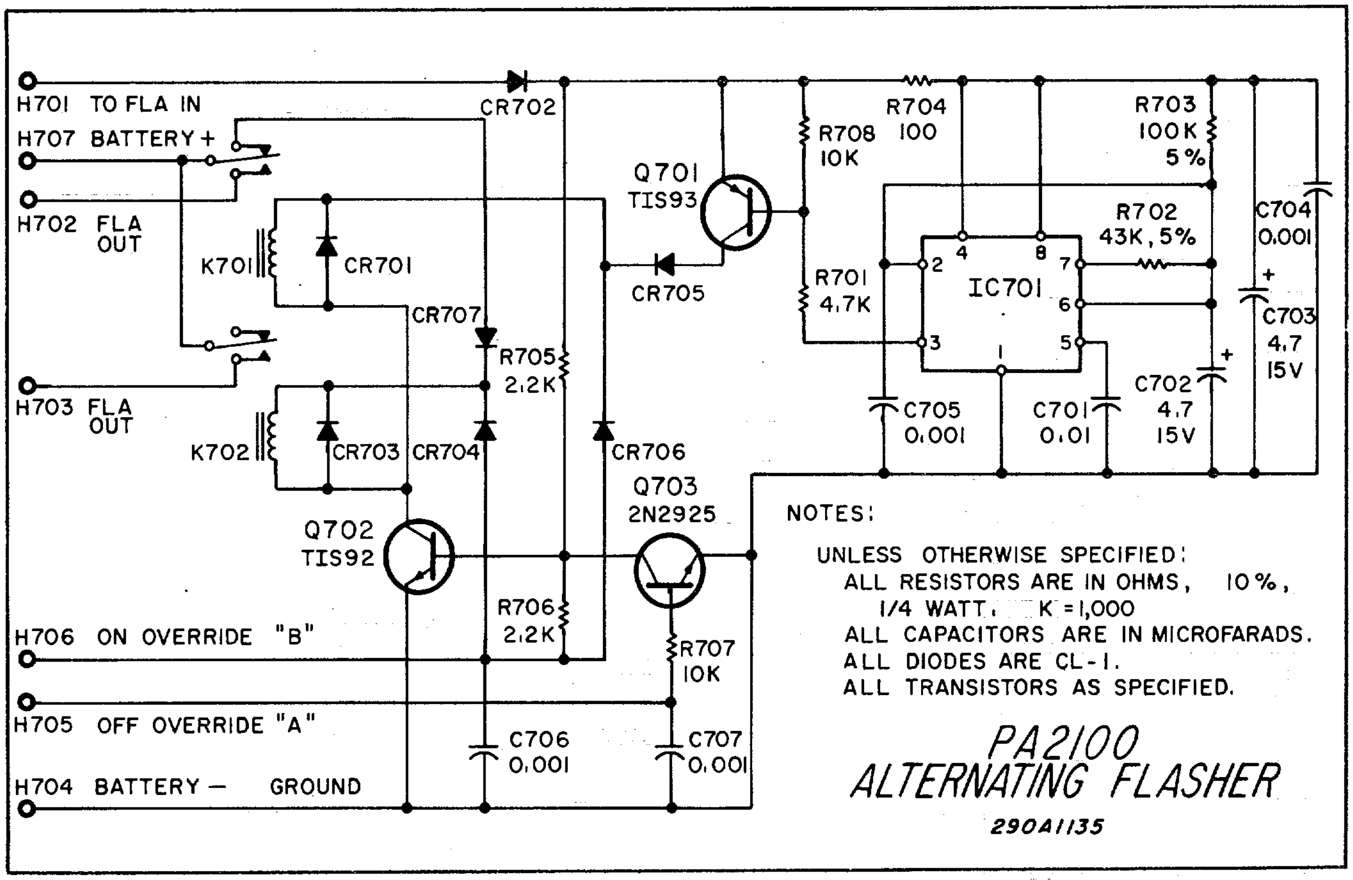


Figure 6-12. Control Module Optional Flasher Circuit Board Schematic Diagram.

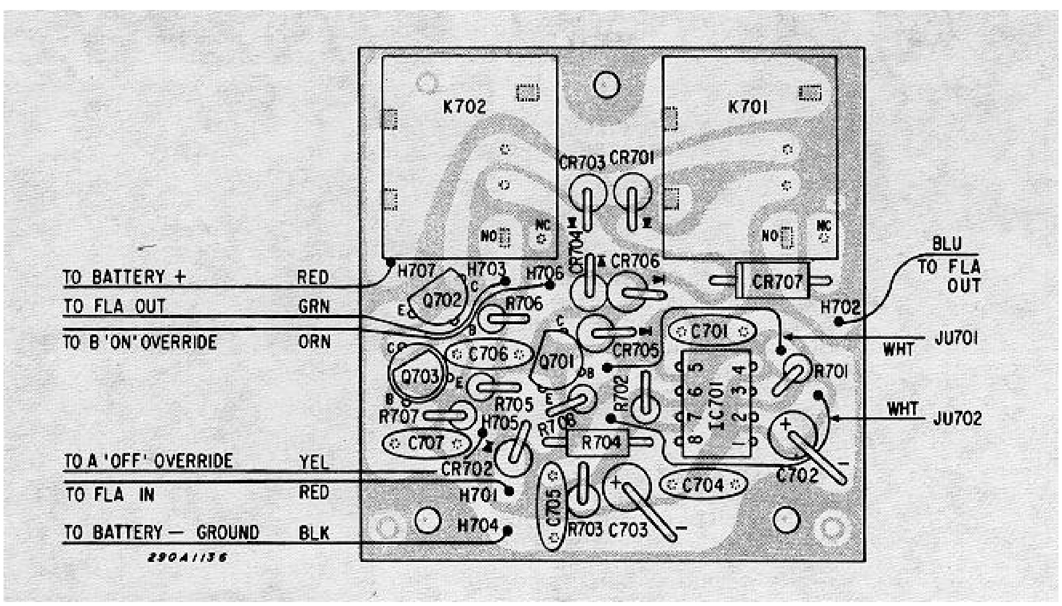


Figure 6-13. Control Module Optional Flasher Circuit Board Parts Location Diagram.

MAIN CIRCUIT BOARD
PARTS LIST

Schematic Symbol	Description	Part No.
	RESISTORS	
R101,121,122,123, 125,134,136,137, 140,141,154,155, 156	10K Ohm	100A207
R102,109,114, 115,118,120	1K Ohm, 2%	100A712
R103	1.8K Ohm	100A205
R104	1.8K Ohm, 5%	100A705
R105	5.6K Ohm, 2%	100A714
R106,107,119	30K Ohm, 2%	100A717
R108	22K Ohm	100A208
R110	330 Ohm	100A201
R111,112,126	100K Ohm	100A222
R113,116	220K Ohm, 2%	100A719
R124	100 Ohm	100A236
R127	8.2K Ohm, 2%	100A715
R128	12K Ohm, 2%	100A716
R129	56K Ohm, 2%	100A718
R130	56 Ohm, 1/2 Watt	100A414
R131	3.9K Ohm	100A273
R132	2.2K Ohm	100A221
R133	680 Ohm	100A231
R135	680 Ohm, 1/2 Watt	100A313
R138	47K Ohm	100A228
R139,142,146 148,149	1K Ohm	100A233
R143	Potentiometer 5K Ohm	105B204
R144,150	10 Ohm	100A251
R145	6.8K Ohm	100A210
R147	33K Ohm	100A211
R151	27 Ohm, 5%	100A290
R152	8.2 Ohm, 5%	100A724
R153	270 Ohm, 2 Watt, WW	103A128
R157	8.2K Ohm	100A268
R158	Potentiometer, 100 Ohm	105A244
R159,161,162	39 Ohm	100A286
R160	4.7K Ohm, 1/2 Watt	100A320
R163,164	.47 Ohm, 2 Watt, WW	103A130
R165	100K Ohm	100A222
RT101	Thermistor, 200 Ohm	104A111

Unless otherwise specified, all resistors are carbon composition, 10%, 1/4 watt.

Schematic Symbol	Description	Part No.
	CAPACITORS	
C101,104,107,109	.001UF, 500V, disc	107A263
C102,110,112,117	10UF, 10V, tantalum	107A634
C103,111,116 121,122	.01 UF, 25V, disc	107A226
	CAPACITORS (Continued)	
C105	.047UF, 50V, Mylar	107A418
C106	.47UF, 15V tantalum	107A621
C108	150UF, 15V, tantalum	107A680
C113,118	82UF, 15V, tantalum	107A650
C114,115	.1UF, 100V, Mylar	107A406
C119,120	.0033UF, 100V, disc	107A271
	SEMICONDUCTORS	
IC101	Circuit Integrated, RCA, CD4066 AE	128A047
IC102,104,106	Circuit Integrated, National, LM555C	128A043-02
IC103	Circuit, Integrated, National, LM358	128A045
IC105	Circuit, Integrated, RCA, CD4027AE	128A044
IC107	Circuit, Integrated, National, LM380N	128A046
Q101,106	Transistor, NPN, Silicon, 2N2925	125A119
Q102,105,110	Transistor, PNP, Silicon, 2N3702	125A113
Q103	Transistor, NPN, Silicon, 2N5296	125B415
Q104	Transistor, NPN, Silicon, TIS92	125B132
Q107	Transistor, PNP, Silicon, TIS93	125A133
Q108,109	Transistor, PNP, Silicon, 2N6109	125B431
CR101,102,103 104,105,106, 108,109,113 114,116	Diode, T151	115B101
CR110	Diode, Zener, 11V, 1 Watt	115A245
CR111,112,115	Diode ED 3002S (CL-1)	115B301
	MISCELLANEOUS	
T101	Transformer, Audio	120B123
T102	Transformer, Driver	120B145
P101,102,103	Connector, Wafer	140A170
	Main Circuit Board (without parts	130D228
	Main Circuit Board (with parts installed)	200D703

FRONT CIRCUIT BOARD
PARTS LIST

Schematic Symbol	Description	Part No.
R201	Resistor, 470 Ohm, FC, 10%, 1/4 Watt	100A255
R202	Resistor, 4.7K Ohm, FC, 10%, 1/4 Watt	100A224
R204,205	Resistor, 47 Ohm, FC 10%, 1/4 Watt	100A237
C201	Capacitor, 10UF, 10V, tantalum	107A634
CR201	Pilot Light, LED, Red	147A113A-01
CR202,203,204 205,206,207,208	Diode, TI51	115B101
DS201,202	Lamp, 14V, CM382	8469A665
SW201	Switch, Pushbutton	122A167
SW301D,E	Switch, Rotary	122B164
J201,202	Connector, Right Angle	139A161
P201,202	Terminal, USECO 1280BI	233A103
	Front Circuit Board (without parts)	130D229
	Front Circuit Board (with parts installed)	200D702

RELAY CIRCUIT BOARD
PARTS LIST

Schematic Symbol	Description	Part No.
CR501-509, 513-515	Diode, ED3002S (CL-1)	115B301
K501,502,503	Relay, SPDT, 12V	8536A401
SW501	Switch, Rocker, 9 Section, Miniature	122A165A-02
	Relay Circuit Board (without parts)	130D224
	Relay Circuit Board (with parts installed)	200D699

CHASSIS MOUNTED COMPONENTS
PARTS LIST

Schematic Symbol	Description	Part No.
R301	Potentiometer, 10K Ohm	106A121
C301	Capacitor, 500UF, 15V, electrolytic	108A122
C302,303	Capacitor, .001UF, 100V, disc	107A207
C304,305	Capacitor, .005,100V, disc	107A211
CR117	Diode, 368AR	115A311
Q301,302	Transistor, NPN, Silicon 2N5885	125B432
T301	Transformer, Output	120C146
SW302	Switch, Slide, DPDT	122A144
F301	Fuse, 20 Ampere, 3AG	148A127
P301	Connector, 8-contact (Cinch-Jones) P308-AB	140A114
J302	Connector, 12 Contact (Molex 03-06-212)	140A168
	Fuseholder, 342002	143A106
	Knob, Control	141A117
	Knob, GAIN	141A118
	Connector, PC Board	233A126

ACCESSORY KIT

Qty.	Description	Part No.
1	Straight Connector, Two Collar N-35	8536A440
2	1/4" - 20 x 3/8 Hex. Head Screw	7002A000-06
2	1/4" - 20 x 1/2" Hex. Head Screw	7003A307-08
2	1/4" - 20" Hex. Nut	7059A018
4	Split Lockwasher, 1/4"	7074A015
2	8A x 1/2" Phillips, Pan Head, Thread Forming Screw	7011A012-08
1	Circuit Breaker, 12V, 50 Amp	8474A138
1	Item Sheet	8536A418
	Accessory Kit, Complete	8536A405

MISCELLANEOUS PARTS

Description	Part No.
Assembly, Housing	8536C408
Bracket, Mounting	8536A420

LED CIRCUIT BOARD
PARTS LIST

Schematic Symbol	Description	Part No.
R401,402,403, 404	Resistor, 470 Ohm, FC, 10%, 1/4 Watt	100A255
R405	Resistor, 47 Ohm, FC, 10%, 1/4 Watt	100A237
CR401	Pilot Light LED, Green	147A113A-02
CR402,403,404	Pilot Light, LED, Red	147A113A-01
DS401	Lamp, Clear, 14V, CM 382	8469A665
SW401	Switch, Rotary	122B166
	LED Circuit Board (without parts)	130C226
	LED Circuit Board (with parts installed)	200C701

OPTION F (ALTERNATING FLASHER)
PARTS LIST

Schematic Symbol	Description	Part No.
R701	Resistor, 4.7K Ohm, FC, 10%, 1/4 Watt	100A224
R702	Resistor, 43K Ohm, FC, 5%, 1/4 Watt	100A710
R703	Resistor, 100K Ohm, FC, 5%, 1/4 Watt	100A262
R704	Resistor, 100 Ohm, FC, 10%, 1/4 Watt	100A236
R705,706	Resistor, 2.2K Ohm, FC, 10%, 1/4 Watt	100A221
R707,708	Resistor, 10K Ohm, FC, 10%, 1/4 Watt	100A207
C701	Capacitor, 0.01 UF, 25V, Disc	107A226
C702,703	Capacitor, 4.7 UF, 15V, Tantalum	107A678
C704,705,706, 707	Capacitor, 0.001UF, 500V, Disc	107A263
IC701	Integrated Circuit, LM555C	128A043-02
Q701	Transistor, PNP, T1S93	125B133
Q702	Transistor, NPN, T1S92	125B132
Q703	Transistor, NPN, 2N2925	125A119
CR701,702,703, 704,705,706,707	Diode, ED 3002S	115B301
K701,702	Relay, SPST, Bosch	131A125
	Printed Circuit Board (without parts)	130C239
	Printed Circuit Board (with parts installed)	200C722

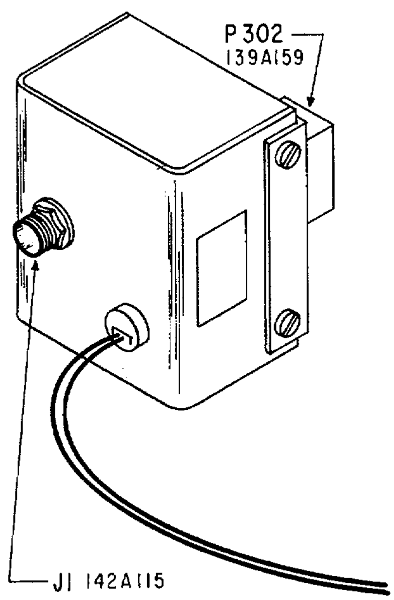
SIGNAL DIVISION
Federal Signal Corporation

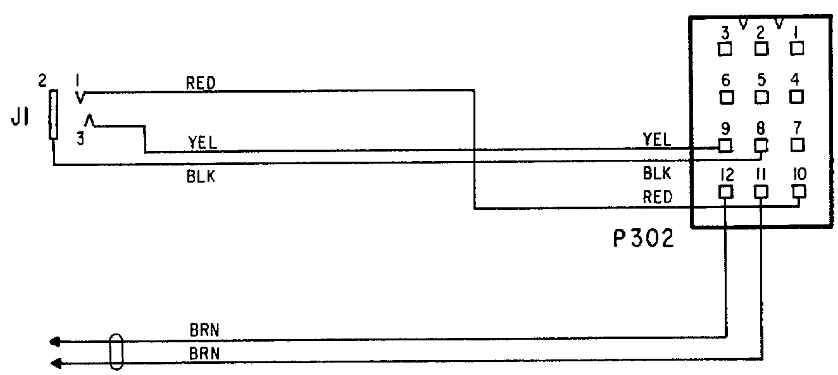
INSTALLATION INSTRUCTIONS
FOR
MODEL FN900 ADAPTER MODULE
FOR
PA OVERRIDE OPERATION

1. Install the adapter module following the instructions in the siren service manual.

2. Connect the brown zip cord across the radio speaker voice coil terminals.

3. Plug the Model MNCT Microphone into J1 on the adapter module. The siren is now set for PA Override operation.





FN900*
290B1047

SIGNAL DIVISION
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INSTRUCTIONS

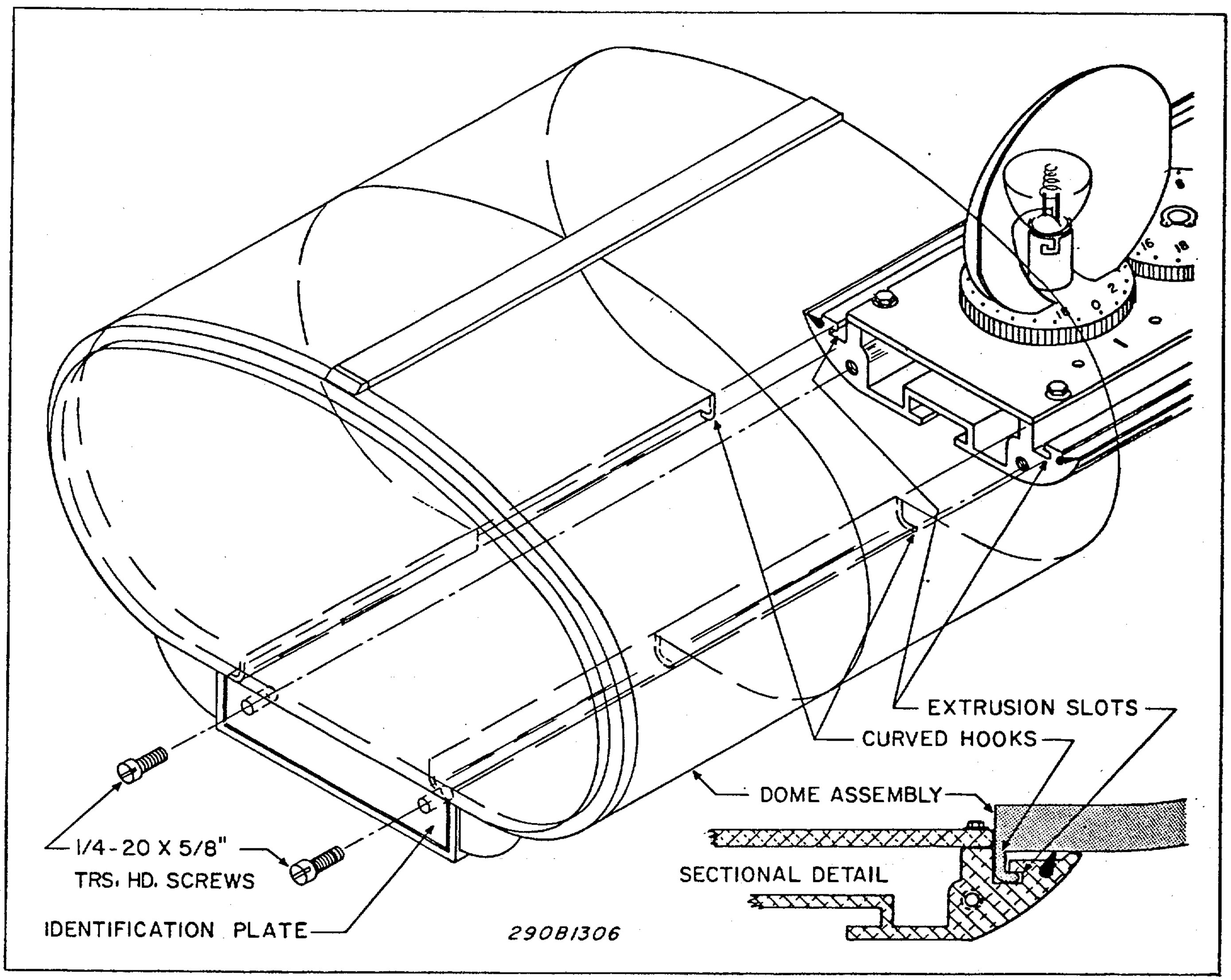
FOR

INSTALLING AeroDynic T.M. DOME ASSEMBLY

1. Remove two screws located at identification plate. Slide dome assembly out.

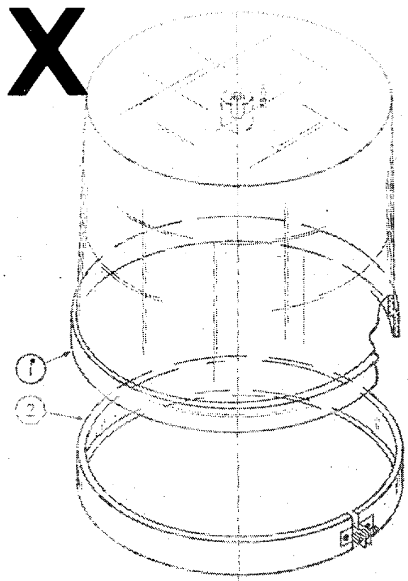
2. To install dome assembly, line-up the curved hook ends of the dome assembly with the slots in the extrusion. IMPORTANT : You may have to slightly bow the dome assembly out to allow it to line-up with the extrusion slots.

3. Slide-on dome assembly and secure with two screws removed in step 1.



$8.00

SERVICE PARTS INDEX



SIGNAL DIVISION
Federal Signal Corporation

SPI-1-82

SERVICE DEPARTMENT

SERVICE PARTS POLICY, TERMS AND CONDITIONS

I. GENERAL

Service parts orders may be placed by telephone, Telex, mail or in-person, through our District Sales office or directly from Blue Island.

Service parts orders should be placed separately from Finished Goods, combining the two types of orders will delay processing,

II. PARTS SALES, TERMS AND CONDITIONS

1) Service parts orders will be filled at prices in effect at the time of receipt of order. In the event of a price change prior to receipt date of order, the order will be processed at the new prices. Quoted prices will supersede current prices, providing that the quotation or special contract prices have not expired.

2) Terms are net 30. Authorized distributors and service organization which have been assigned a computerized customer code number, will be given a discount on service parts orders which total to $50.00 or more per purchase order.

3) Parts purchase orders of less than $50.00 will be billed at list prices.

4) Non-coded customers will be billed at list prices.

5) C.O.D. orders from coded or non-coded customers will be charged list prices plus C.O.D. and shipping charges.

6) All prices are F.O.B. shipping point and prices are subject to change without notice.

III. PARTS WARRANTY

1) Purchased service parts identified by Federal Part numbers individually listed at $50.00 or more, are warranted for 30 days from the date of delivery. Replacement parts will be shipped and billed with credit to be issued upon return of the claimed defective parts after our inspection verifies any defects due to design, material or workmanship.

2) No warranty is extended for individually purchased service parts under $50.00.

IV. CREDIT RETURNS

1) New and unused purchased service parts over $50.00 per part may be returned for credit at a 20% restocking charge by first obtaining written authorization from the Service Department, Blue Island.

2) Parts under $50.00 are not returnable for credit.

3) Special order parts or assemblies are not returnable.

4) Crystals or Reeds are not returnable.

5) Duplicate shipments, wrong parts shipped due to factory error, must be brought to our attention within 5 days after arrival of shipments.

6) Correspondence pertaining to credit or warranty returns must be referenced to the factory invoice number.

V. PARTS DAMAGED IN SHIPMENT

1) Parts damaged in shipment, either concealed or carton damaged received by the customer is the responsibility of the customer to file claim with the carrier. For UPS shipments, contact the carrier for inspection and advise the factory for disposition.

CONTENTS

CONTENTS

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GENERAL INFORMATION

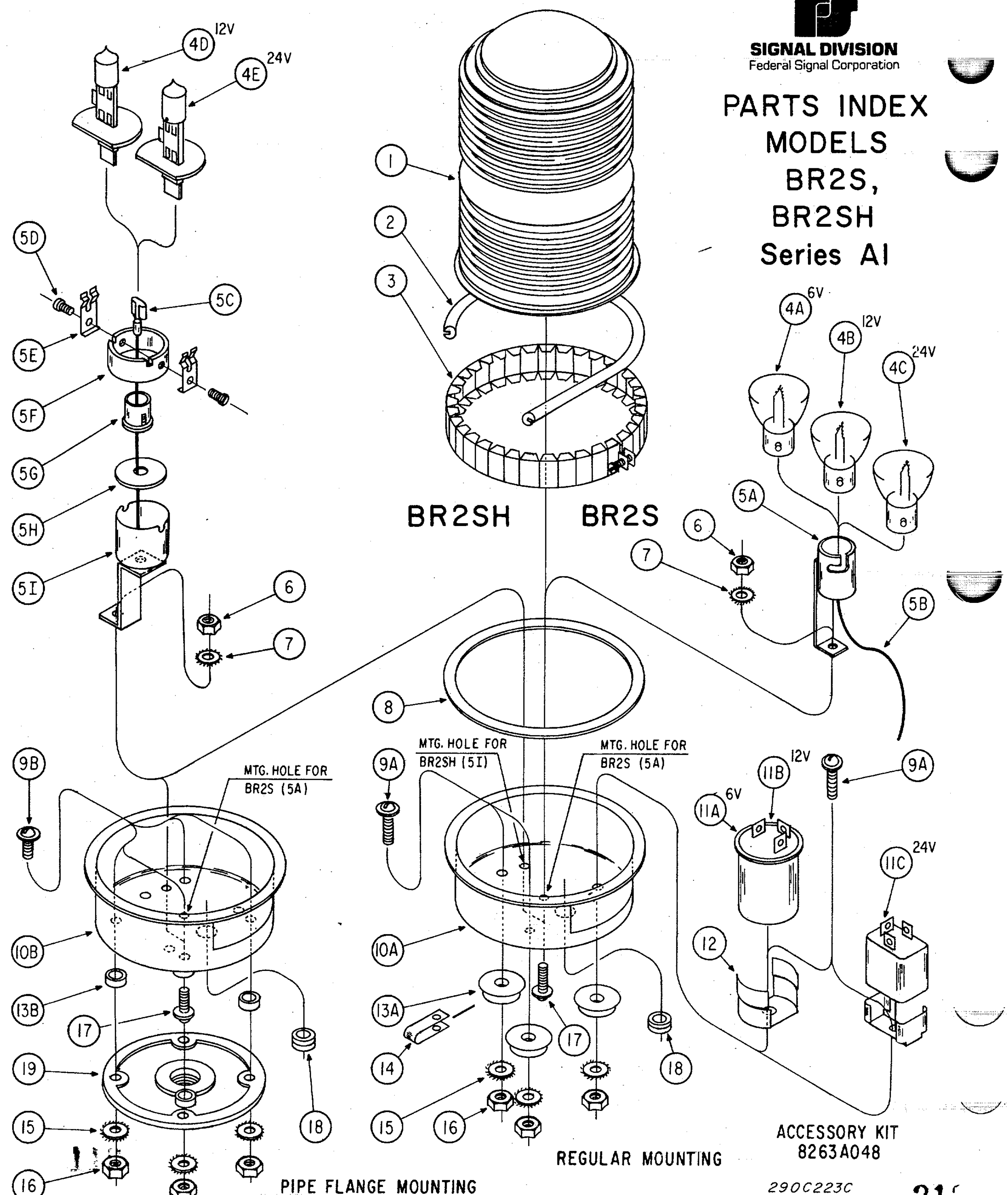
CONTENTS

VEHICLE LIGHTS

1

SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX MODELS BR2S, BR2SH Series A1



290C223C 21

Index No.	Description	Part No.	BR2S	BR2SH
1	Dome, Glass, Red 6350	8248C004	1AR	1AR
	Dome, Glass, Yellow 5600	8248C004-01		
	Dome, Glass, Blue 3115	8248C004-02		
	Dome, Glass, Green 4184	8248C004-03		
	Dome, Glass, Clear	8248C004-04		
2	Gasket, Retaining Band	8240A107	1	1
3	Retaining Band Assembly	8263A036	1	1
4A	Bulb, 6 Volt 1183	8440A107	1AR	0
4B	Bulb, 12 Volt 1195	8440A108		0
4C	Bulb, 24 Volt 309	8107A041		0
4D	Halogen Lamp 12 Volt	8440A265	0	1AR
4E	Halogen Lamp 24 Volt	8444A151	0	1AR
5A	Socket Assembly	8263A024	1	0
5B	Wire, Lead	8444A017-03	1	0
5C	Wire, Lead	310A394	0	1
5D	8-32 x 3/16 Screw, Rd. Hd. Slt.	7000A061-03	0	2
5E	Spring, Retainer	8440A258	0	2
5F	Bushing, Adapter	8440A250	0	1
5G	Bushing, Snap	8449A010	0	1
5H	Insulator	8440A262	0	1
5I	Socket, With Hex Nut	8269A059A	0	1
6	8-32 Nut, Hex, Keps	7058A022	1	1
7	Washer, Ext. Tooth, #8	7075A025	1	1
8	Gasket, Dome and Housing	8263A014	1	1
9A	10-32 x 3/4 Screw, Rd. Hd. Slt.	7000A068-12	3AR	3AR
9B	10-32 x 1/2 Screw, Rd. Hd. Slt.	7000A068-08	4AR	4AR
10A	Housing, Socket, Regular Mounting	8263A018	1AR	1AR
10B	Housing, Socket, Pipe Mounting	8263A018-02	1AR	1AR
11A	Flasher, 6 Volt	8285A027	1AR	0
11B	Flasher, 12 Volt	8285A028	1AR	1AR
11C	Flasher, 24 Volt , With Clip	8226A187-02	1AR	1AR
12	Clip, Flasher	8285A035-02	1AR	1AR
13A	Spacer, Rubber	8108A009	3	0
13B	Spacer	8179A027	0	4
14	Clip, Grounding	8240A023	1	0
15	Washer, Ext. Tooth, #10	7075A026	3	4
16	10-32 Nut, Hex, Keps	7058A004	3	4
17	8-32 x 1/2 Screw, Bnd. Hd. Slt.	7000A006-08	1	1
18	Grommet, Rubber	8108A014	1	1
19	Flange, Pipe Mounting	8241B017-01	1AR	1AR
Not Shown	Accessory Kit	8263A048	1AR	1AR

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, mounting type, and part number.

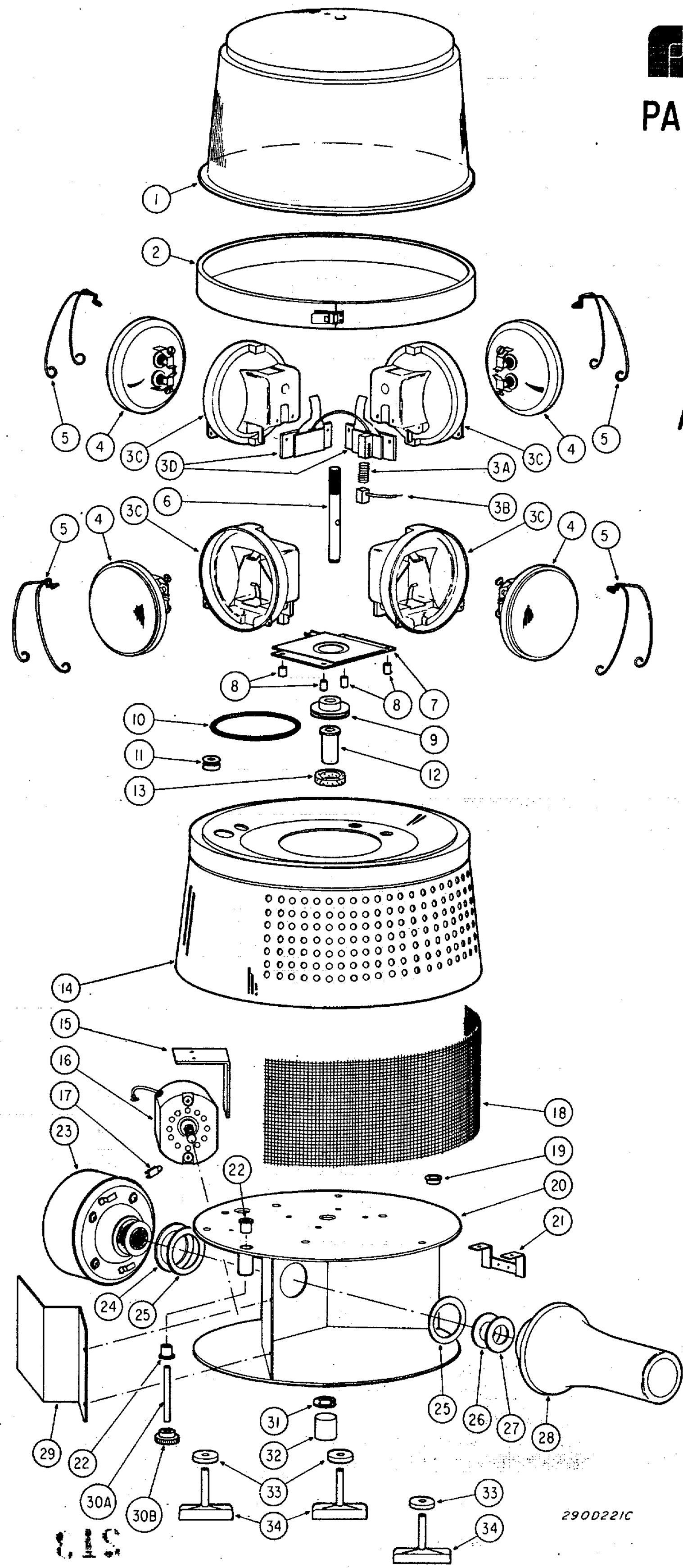
Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

Federal Signal Corporation
Signal Division
136th and Western Avenue
Blue Island, Illinois 60406

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Federal Signal Corporation

PARTS INDEX
MODELS:
CJ 184
Series
A1 & E1
CJ 284
Series
A3 & A4



Item No.	Description	Part No.	Qty.
1	Dome , Acrylic , Red	8434D101-01	
	Dome , Acrylic , Blue	8434D101-02	
	Dome , Acrylic , Green	8434D101-03	
	Dome , Acrylic , Amber	8434D101-04	
	Dome , Acrylic , Clear	8434D101-05	
	Dome , Acrylic , Blue CIE	8434D101-06	1AR
	Split Dome , Acrylic , Red & Blue	8434C102-01	
	Split Dome , Acrylic , Blue & Amber	8434C102-02	
	Split Dome , Acrylic , Red & Clear	8434C102-03	
	Split Dome , Acrylic , Amber & Red	8434C102-04	
	Split Dome , Acrylic , Amber & Clear	8434C102-05	
2	Retaining Band Assembly	8242C010	1
3	Lamp Holder Assembly (consists of items 3C , 3D , & 5)	8424C052	1
3A	Spring	8240A032	2
3B	Brush	8240A031-01	2
3C	Holder , Lamp	8424B012	4
3D	Brush Holder and Contact Spring Assembly (includes items 3A , and 3B)	8424A006	2
4	Lamp 12V Clear GE #4416	8107A033	
	Lamp 12V Blue GE #4416B	8107A057	
	Lamp 12V Amber GE #4416A	8107A059	4AR
	Lamp 12V Red GE #4416R	8107A042	
	Lamp 24V Clear GE #4505	8107A027	
	Lamp 12V Clear H76600 (CJ184Q* , and CJ284Q*)	8107A103	
5	Clamp Wire , Lamp	8422B016	4
6	Shaft , Lamp	8423A018	1
7	Collector Ring Assembly	8423A013	1
8	Spacer	8441A008-03	4
9	Pulley	8423A022	1
10	Belt , Drive	* 8423A027	1
11	Pulley (small)	8423A019	1
12	Bearing (part of item 20)	* 8423A036	1
13	Washer , Oil Retention	* 8423A035	1
14	Housing Assembly (includes nameplate)		
	Model CJ184*012 Series E2	8423B055	
	Model CJ284*012 Series A4	8423B055-01	
	Model CJ184*024 Series	8423B055-02	
	Model CJ184*012 Series E4	8423B055-03	
	Model CJ284*012 Series A4	8423B055-04	1AR
	Model CJ284*024 Series A3	8423B055-05	
	Model CJ184*012 Series E3	8423B055-06	
	Model CJ284*012 Series A4	8423B055-07	
15	Bracket , Motor	8424A056	1
16	Motor 12V	8422B111-25	1AR
	Motor 12VDC Ungrounded	8422B111-27	
	Motor 24V 2100 RPM	8422B111-28	
17	Terminal (series E1 only)	8283A956	2AR
18	Screen , Bug	8423A037	1
19	Bushing , Snap , SB500	8422A095	2
20	Frame Assembly (includes item 12)	8423C008-02	1
21	Terminal Strip Assembly	8441A042	2
22	Bearing	* 8423A023	2
23	Driver SA70 (gray) CJ184	8283B433	1AR
	Driver 100W CJ284	8287B129	
24	Washer , Steel	7072A137A	1
25	Washer , Vellutex (large)	8283A451	2
26	Washer , Vellutex	8283A453	1
27	Washer , Rubber	8283A452	1
28	Cone	8283B430-01	1
29	Guard , Motor	8423A015	1
30	Gear and Shaft Assembly (consists of items 30A and 30B)	8423A028	1
30A	Shaft	8423A020	1
30B	Gear , Worm	8423A011	1
31	Ring Retaining	8422A010	1
32	Cap , Protective	8459A029	1
33	Washer , Rubber	8422A033	6
34	Bolt , Toggle	8422A032	3
Not Shown	Switch	8240A033	1
	Strap, Grounding	8240A023	1
	Coil , Voice (series A1, part of item 23)	8287A164	1
	Visibar Mounting Kit	8422A174	AR
	Service Parts Kit	* 8423A056	AR
	Accessory Kit	8423A029	1
	Gasket (for bottom of housing after trimming to mounting surface contour).	8240A007-01	

* Serive Parts Kit contains one each of items 10 , 12 , 13 , 30 , and two of item 22. Also Parts List Sheet PPL 0017-290D221C.

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, series, voltage, description, and part number.

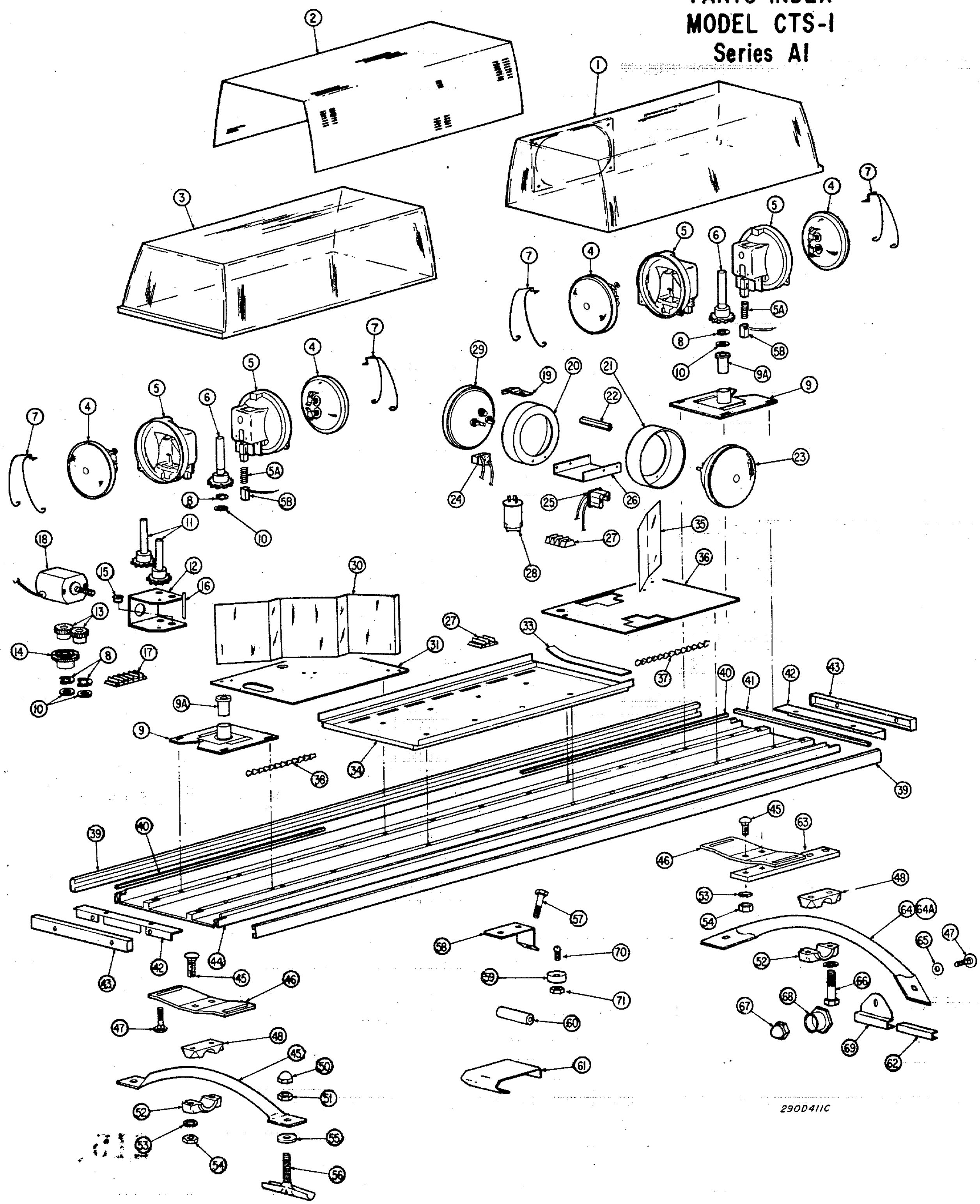
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Federal Signal Corporation
Signal Division
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SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX
MODEL CTS-1
Series A1



MODEL CTS-1

Item	Description	Part No.	Qty.
	Housing Assembly, Red Lexan	8470D104	1 AR
	Housing Assembly, Blue Lexan	8470D104-01	
	Housing Assembly, Blue with Red inserts	8470D104-05	
2	Grill	8470D041	1
3	Housing, Red Lexan	8470D004-11	1 AR
	Housing, Blue Lexan	8470D004-22	
	Housing, Amber Lexan	8470D004-24	
	Housing, Clear Lexan	8470D004-25	
	Lamp, 6V, Clear #4516	8107A032	4 AR
	Lamp, 12V, 60W, Clear #4464	8107A066	
	Lamp, 12V, 60W, Red #4464R	8107A068	
	Lamp, 12V, 60W, Blue #4416B	8107A057	
	Lamp, 12V, 30W, Amber #4416A	8107A059	
	Lamp, 24V, 50W, Clear #4505	8107A027	
	Lamp, 24V, 50W, Red #4505R	8107A060	
	Lamp, 24V, 50W, Blue #4505B	8107A058	
5	Lamp Holder Assy. (includes item 5A & 5B)	8422B019	4
5A	Spring	8240A032	4
5B	Brush	8240A031-01	4
6	Sprocket and Shaft Assembly	8470A117	2
7	Lamp Clamp Wire	8422B016	4
8	Retaining Ring	8422A010	4
9	Mounting Plate Assy. (includes item 9A)	8470A031	2
9A	Bearing	8470A030	2
10	Flat Washer	7072A139	6
11	Drive Shaft and Sprocket Assembly	8470A115	2
12	Motor Bracket Assembly	8470C011	1
13	Spur Gear	8470A010	2
14	Worm Gear Clutch Assembly	8422A114	1
15	Bearing	8422A011	4
16	Motor Bracket Spacer	8470A017	1
17	Terminal Block (5 terminal)	8470A105	1
18	Motor, 6V	8422B111-04	1 AR
	Motor, 12V	8422B111-25	
	Motor, 24V	8422B111-26	
19	Lamp Clamp	8240A016	6
20	Lamp Holder Assembly (Rear)	8470A089	1
21	Lamp Holder Assembly (Front)	8470A088	1
22	Lamp Holder Spacer	8470A080	1
	Lamp, 12V, 37.5W #4001	8107A074	1
	Connector Assembly	8443B026-05	1
	Connector Assembly	8443B026-06	1
	Lamp Holder Bracket	8470B079	1
27	Terminal Block (2 terminals) (use with item 34A)	8422A032	1
28	Flasher, 12V	8285A035	1
29	Lamp, 12V, 60W #4478	8107A051	1
30	Mirror Assembly, Right Side	8470B023	1
31	Cover Plate, Right Side	8470C027	1
33	Gasket	8470A146	2
34A	Speaker Mounting Plate Assembly (black anodized aluminum) (requires use of item 27)	8470C037	1 AR
34B	Speaker Mounting Plate (cream color, molded plastic) (with molded in terminal block)	8470D235	
34	Speaker Mounting Plate Assembly	8470C037	1
35	Mirror Assembly, Left Side	8470B082	1
36	Cover Plate, Left Side	8470C085	1
37	Chain	8470A044	1
38	Chain	8470A043	1
39	Moulding	8470B006	2
40	Gasket, Mounting Base	8470A134	4

Item No.	Description	Part No.	Qty.
41	Gasket, End Plate	8470A040	2
42	End Plate Assembly	8470A068	2
43	End Cap	8470B019	2
44	Mounting Base	8470D007	1
45	Carriage Bolt	7004A004-32	4
46	Adapter Plate	8470B032	2
47	Carriage Bolt , four used on Gutter Mount, four to secure item 46 to 44 .	8422A189	8 AR
48	Mounting Bracket Clamp (upper)	8422C060-02	2
49	Permanent Mounting Bracket (Bolt-on)	8422C049	2 AR
50	Cap Nut	8422A057	4 AR
51	Jam Nut	7057A049	4 AR
52	Mounting Bracket Clamp (lower)	8422C060-01	2
53	3/8 Split Lockwasher	7074A023	4 AR
54	3/8-16 Nut, Hex	7057A032	4 AR
55	Rubber Mounting Pad	8422A087	4 AR
56	Toggle Bolt	8422A032	4 AR
57	5/16-18 x 1-3/8 in. Bolt, Hex Hd.	7002A005-22	2 AR
58	Adapter Bracket	8422A245	2 AR
59	Bumper	8422A249	4 AR
60	Rubber Spacer	8422A307	2 AR
61	Hook Assembly	8422A285	2 AR
62	Rubber Channel	8422A086	4 AR
63	Extension Bar	8422A194	2 AR
64	Gutter Mounting Bracket (Clamp-on)	8422D048	2 AR
64A	Gutter Mounting Bracket, Hi-Bar	8422D048-01	2 AR
65	Flat Washer	7072A141	4 AR
66	3/8-16 x 2 inch Bolt, Hex Hd.	7002A009-32	4 AR
67	Cap Nut	7054A003	4 AR
68	Cam	8422A051-01	4 AR
69	Gutter Hook	8422A050	4 AR
70	Screw	8422A314	4 AR
71	Nut	7054A010	4 AR
Not Shown			
	Switch	8470A094	1
	Hole Plug (large)	8422A063	1
	Hole Plug (small)	8470A047	12
	Dome Gasket Conversion Kit (includes items 33 and 40 .)	8470A147	AR
	Gutter Mounting Accessory Kit	See Bulletin 73	
	Permanent Mounting Accessory Kit	See Bulletin 73	
	Gutterless Mounting Kit	See Bulletin 73	
	Extended Gutter Mounting Accessory Kit	See Bulletin 73	
	Hi-Bar Gutter Mounting Accessory Kit	See Bulletin 73	
	Extended Hi-Bar Gutter Mounting Kit	See Bulletin 73	
	Extension Bar Kit	See Bulletin 73	
	Gutter to Gutterless Conversion Kit	See Bulletin 73	

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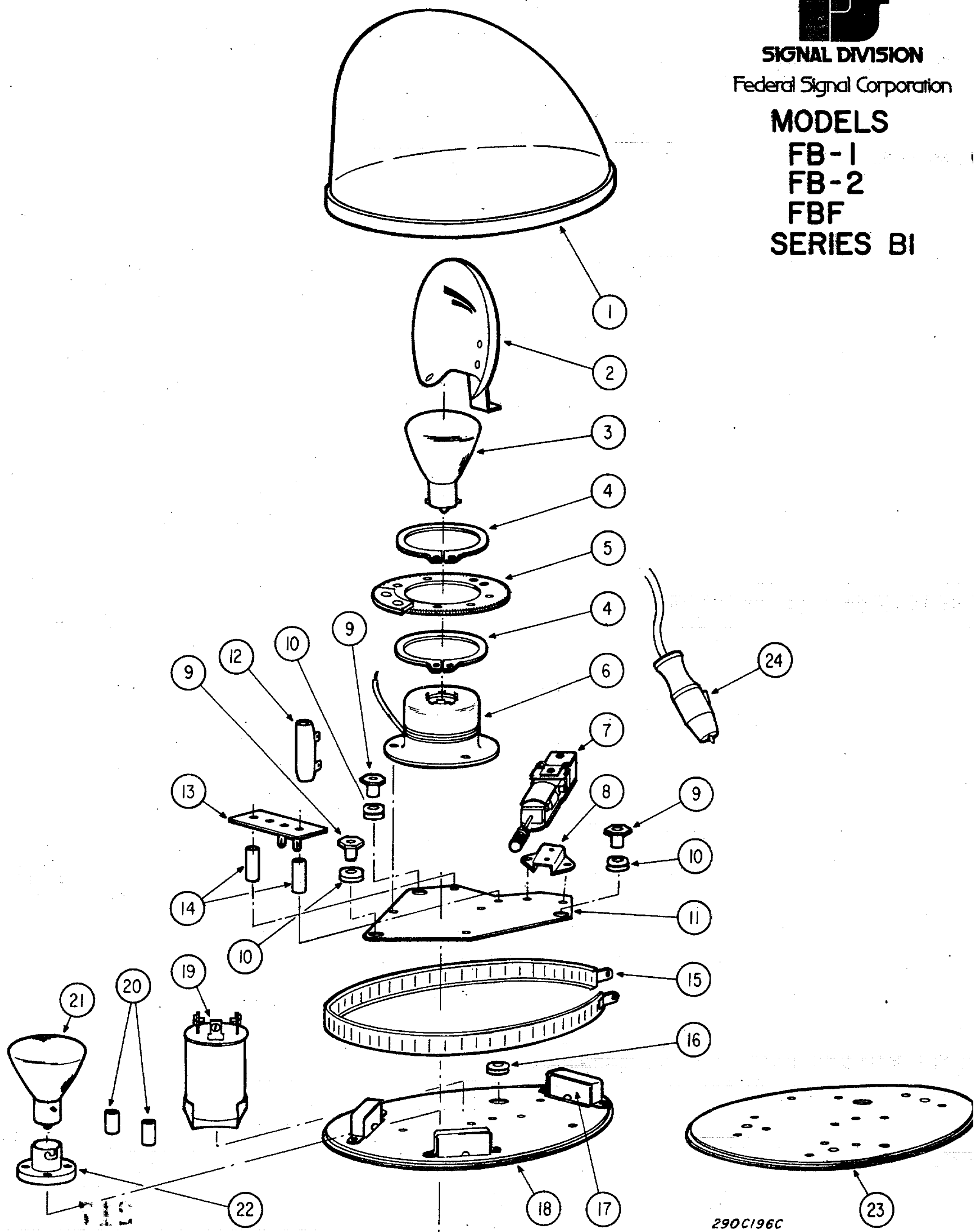
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MODELS
FB-1
FB-2
FBF
SERIES B1



MODELS FB-1, FB-2, and FBF

PPL 0018
PARTS LIST

AUGUST 1981

Item No.	Description	Part No.	FB1 12V	FB1 24V	FB2 12V	FB2 24V	FB2 36V	FBF 12V
1	Plastic Dome, Red	8440D009H-05	*	*	*	*	*	*
	Plastic Dome, Blue	8440D009H-06	*	*	*	*	*	*
	Plastic Dome, Green	8440D009H-07	*	*	*	*	*	*
	Plastic Dome, Amber	8440D009H-08	*	*	*	*	*	*
	Plastic Dome, Clear	8440D009H-09	*	*	*	*	*	*
2	Mirror Assembly	8440B016	X	X	X	X	X	X
3	Lamp, 12V	8440A108	X		X			
	Lamp, 24V	8107A045		X		X	X	
4	Retaining Ring	8440A031	X	X	X	X	X	
5	Gear Assembly	8440A038	X	X	X	X	X	
6	Socket Holder Assembly	8441A060	X	X	X	X	X	
7	Motor, 12V	8440A010	X	X	X	X	X	
8	Motor Bracket	8440A005	X	X	X	X	X	
9	Bushing, Threaded	8440A089	X	X	X	X	X	
10	Grommet	8108A014	X	X	X	X	X	
11	Base Plate	8440B090	X	X	X	X	X	
12	Resistor, 50 Ohm, 10W	8441A069		X		X		
	Resistor, 10 Ohm, 25W	8440A190					X	
13	Terminal Strip	8440A035	X	X	X	X	X	
14	Spacer	8350A028-01	X	X	X	X	X	
15	Retaining Band Assembly	8440B160	X	X	X	X	X	X
16	Grommet	8440A023	X	X	X	X	X	X
17	Magnets (Only)	8440A018	X	X				
18	Mounting Plate	8440C022	X					
	Mounting Plate	8440C022-01		X				
19	Flasher, 12V	8285A028						X
20	Spacer	8440A103						X
21	Lamp, 12V	8440A108						X
22	Socket, # 2029	8441A029						X
23	Mounting Plate	8440C019			X			
	Mounting Plate	8440C168				X	X	
24	Plug and Cable Assembly	8440B015	X	X				X
Not Shown								
	Dash Mounting Plate	8440A157	X	X				
	Brush and Spring Assembly	8440A083	X	X	X	X	X	
	Radio Suppressor Kit (filter)	200B217						

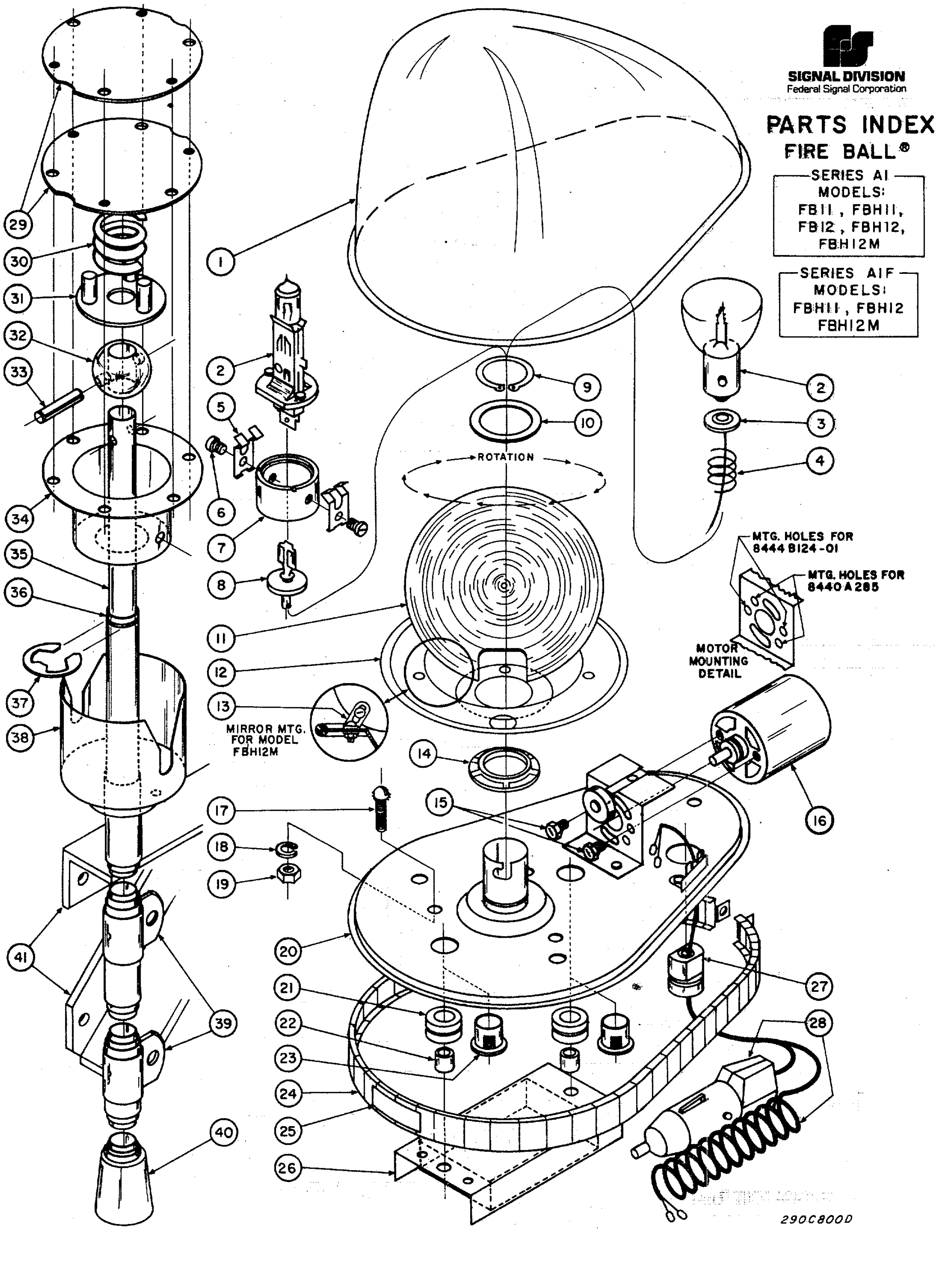
NOTE : For series other than B1, order 12-volt lamp, part number 8440A033.
* Indicates used as required.

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SIGNAL DIVISION
Federal Signal Corporation
PARTS INDEX
FIRE BALL®
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FB12, FBH12,
FBH12M
SERIES A1F
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FBH12M
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MTG. HOLES FOR 8444 B124-01
MTG. HOLES FOR 8440 A 285
MOTOR MOUNTING DETAIL
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290C800D

FIRE BALL VEHICLE LIGHTS
SERIES A1 & A1F

Domestic Models: FB11*, FBH11*, FB12*, FBH12*, FBH12M*
Foreign Models : FBH11*, FBH12*, FBH12M*

Item No.	Description	Part No.	SERIES A1 FB 11*	SERIES A1 FBH 11*	SERIES A1 FB 12*	SERIES A1 FBH 12*	SERIES A1 FBH 12M*	SERIES A1F FGN FBH 11*	SERIES A1F FGN FBH 12*	SERIES A1F FGN FBH 12M*
1	Housing, Plastic Dome, Red	8440D009H-05	IAR	IAR	IAR	IAR	IAR	IAR	IAR	IAR
	Housing, Plastic Dome, Blue	8440D009H-06	IAR	IAR	IAR	IAR	IAR	IAR	IAR	IAR
	Housing, Plastic Dome, Green	8440D009H-07	IAR	IAR	IAR	IAR	IAR	IAR	IAR	IAR
	Housing, Plastic Dome, Amber	8440D009H-08	IAR	IAR	IAR	IAR	IAR	IAR	IAR	IAR
	Housing, Plastic Dome, Clear	8440D009H-09	IAR	IAR	IAR	IAR	IAR	IAR	IAR	IAR
2	Lamp, 12 Volt	8440A108	1		1					
	Lamp, Quartz Iodide, 12 Volt	8440A265		1		1	1	1	1	1
3	Contact , Lamp	8440A017-03	1		1					
4	Spring, Lamp	8440A017-02	1		1					
5	Retainer Spring, Lamp	8440A258		2		2	2	2	2	2
6	8-32 x 3/16 Mach. Scr.	7000A061-03		2		2	2	2	2	2
7	Bushing Adapter, Lamp	8440A250		1		1	1	1	1	1
8	Lead Assembly	310A360		1		1	1	1	1	1
9	Retaining Ring	8440A270	1	1	1	1	1	1	1	1
10	Washer, Molded	8440A255	1	1	1	1	1	1	1	1
11	Drive Wheel & Mirror Assy.	8440A268	1	1	1	1	1	1	1	1
12	Rubber Tire (part of item 11)	8440A037	IAR	IAR	IAR	IAR	IAR	IAR	IAR	IAR
13	Mirror Support, Right Hand	8440A259-01					1			1
	Mirror Support, Left Hand	8440A259-02					1			1
14	Washer, Shoulder	8440A254	1	1	1	1	1	1	1	1
15	4-40 x 3/16 Hex. Hd. Ind.Int.Scr.	7006A016-03	2	2	2	2	2	2	2	2
16	Motor, 12 Volt	8444B124-01	1	1	1	1				
	Motor & Sleeve Assy.	8440A285					1	1	1	1
17	8-32 x 9/16 Mach. Scr.	7006A006-09					3			3
18	Split Lockwasher	7074A001					3			3
19	Hex Nut	7059A005					3			3
20	Base Plate Assembly	8440B269	1	1	1	1	1	1	1	1
21	Grommet, Rubber	8108A014	2	2				2		
22	Bushing	8440A271	2	2				2		
23	Hole Plug	8470A047			2	2	2		2	2
24	Retaining Band Assembly	8440B160	1	1	1	1	1	1	1	1
25	Nameplates SERIES A1									
	Domestic FB11*012	8146A160-11	1							
	FBH11*012	8146A160-12		1						
	FB12*012	8146A160-13			1					
	FBH12*012	8146A160-14				1				
	FBH12M*012	8146A160-16					1			
	Nameplates SERIES A1F									
	Foreign FBH11*012	8146A160-17						1		
	FBH12*012	8146A160-18							1	
	FBH12M*012	8146A160-20								1
26	Magnet Assembly	8440A274	1	1				1		
27	Bushing, Strain Relief	8440A301	1	1	1	1		1	1	
	Bushing, Strain Relief	8440A302					1			1
28	Plug & Cable Assy., Domestic	8440B015	1	1						
	Plug & Cable Assy., Foreign	8440A341						1		
	Koiled Kord Assy.	8440A295					1			1
29	Cover Plate	8440A111					2			2
30	Spring	8440A114					1			1
31	Socket Washer Assy.	8440A140					1			1
32	Swivel Ball	8440A116					1			1
33	Roll Pin	7091A012					1			1
34	Ball Socket	8440A112					1			1
35	Mast #3	8440B133					1			1
36	Mast #2	8440B132					1			1
37	Retaining Ring	8440A110					1			1
38	Mast Assy. #1	8440B131-01					1			1
39	Clamp	8440A121					2			2
40	Rubber Bumper	8440A138					1			1
41	Mounting Bracket Left Side	8440C130					IAR			IAR
	Mounting Bracket Right Side	8440C139					IAR			IAR
Not Shown	Cover	8440B096	IAR	IAR	IAR	IAR	IAR	IAR	IAR	IAR

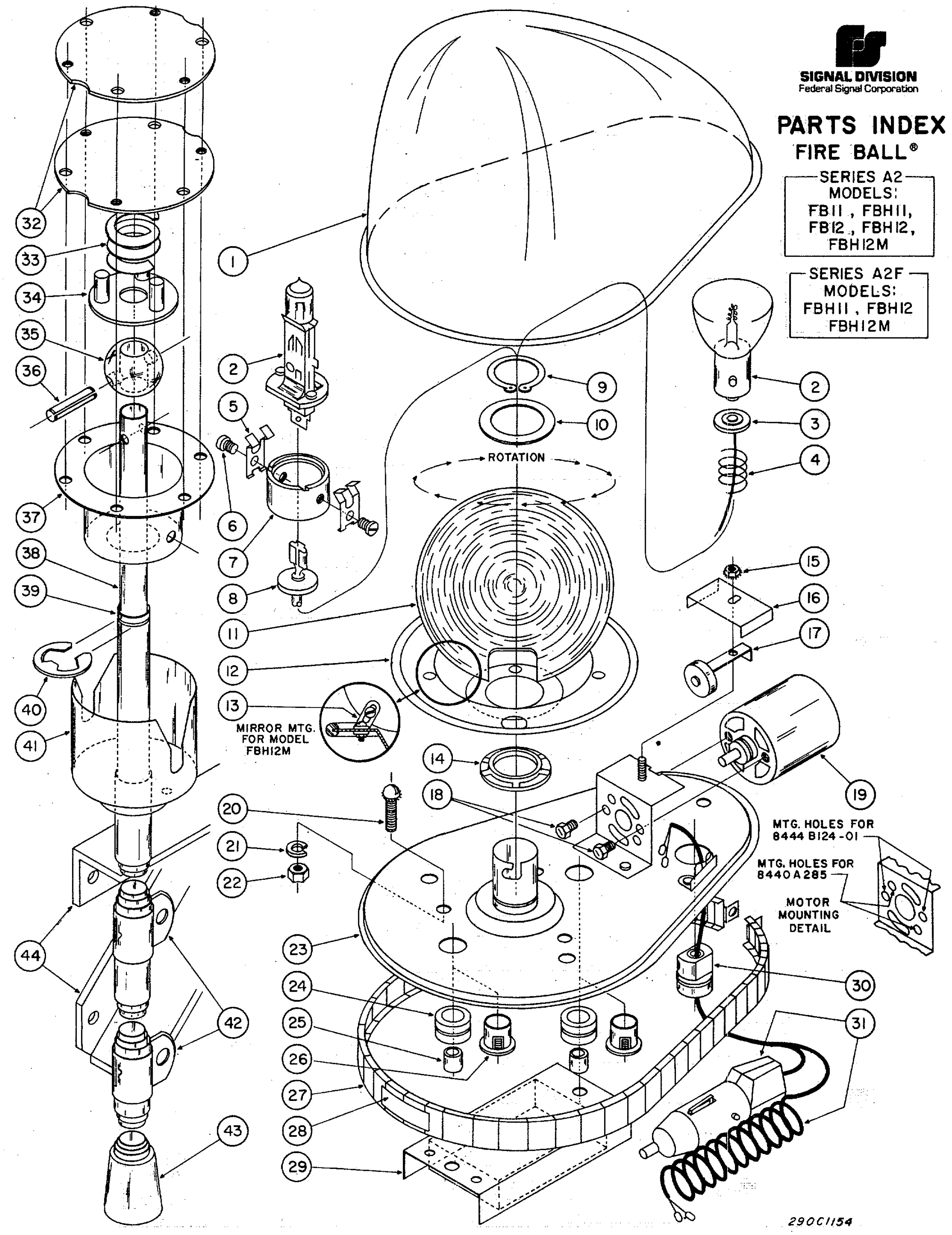
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SIGNAL DIVISION
Federal Signal Corporation
PARTS INDEX
FIRE BALL®
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FB12, FBH12,
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MTG. HOLES FOR
8444 B124-01
MTG. HOLES FOR
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FIRE BALL VEHICLE LIGHTS
SERIES A2 & A2F

AUGUST 1981

Domestic Models : FB11*, FBH11*, FB12*, FBH12*, FBH12M*
Foreign Models : FBH11*, FBH12*, FBH12M*

Item No.	Description	Part No.	SERIES A2 FB 11*	SERIES A2 FBH 11*	SERIES A2 FB 12*	SERIES A2 FBH 12*	SERIES A2 FBH 12M*	SERIES A2F FGN FBH 11*	SERIES A2F FGN FBH 12*	SERIES A2F FGN FBH 12M*
1	Housing, Plastic Dome, Red	8440D009H-05	IAR	IAR	IAR	IAR	IAR	IAR	IAR	IAR
	Housing, Plastic Dome, Blue	8440D009H-06	IAR	IAR	IAR	IAR	IAR	IAR	IAR	IAR
	Housing, Plastic Dome, Green	8440D009H-07	IAR	IAR	IAR	IAR	IAR	IAR	IAR	IAR
	Housing, Plastic Dome, Amber	8440D009H-08	IAR	IAR	IAR	IAR	IAR	IAR	IAR	IAR
	Housing, Plastic Dome, Clear	8440D009H-09	IAR	IAR	IAR	IAR	IAR	IAR	IAR	IAR
2	Lamp, 12Volt	8440A108	1		1					
	Lamp, Quartz Iodide	8440A265		1		1	1	1	1	1
3	Contact, Lamp	8440A017-03	1		1					
4	Spring, Lamp	8440A017-02	1		1					
5	Retainer Spring, Lamp	8440A258		2		2	2	2	2	2
6	8-32 x 3/16 Mach. Scr.	7000A061-03		2		2	2	2	2	2
7	Bushing Adapter, Lamp	8440A250		1		1	1	1	1	1
8	Lead Assembly	310A360		1		1	1	1	1	1
9	Retaining Ring	8440A270	1	1	1	1	1	1	1	1
10	Washer, Molded	8440A255	1	1	1	1	1	1	1	1
11	Drive Wheel & Mirror Assy.	8440A268	1	1	1	1	1	1	1	1
12	Rubber Tire (part of item 11)	8440A037	IAR	IAR	IAR	IAR	IAR	IAR	IAR	IAR
13	Mirror Support, Right Hand	8440A259-01					1			1
	Mirror Support, Left Hand	8440A259-02					1			1
14	Washer, Shoulder	8440A254	1	1	1	1	1	1	1	1
15	4-40 Hex Nut. Ext. Keps.	7058A001	1	1	1	1	1	1	1	1
16	Tensioner , Spring	8440A344	1	1	1	1	1	1	1	1
17	Idler Wheel & Spring Assy.	8440A266B	1	1	1	1	1	1	1	1
18	4-40 x 3/16 Hex.Hd.Ind.Int.Scr.	7006A016-03	2	2	2	2	2	2	2	2
19	Motor, 12 Volt	8444B124-01	1	1	1	1				
	Motor & Sleeve Assy.	8440A285					1	1	1	1
20	8-32 x 9/16 Mach. Scr.	7006A006-09					3			3
21	Split Lockwasher	7074A001					3			3
22	8-32 Hex Nut	7059A005					3			3
23	Base Plate Assy.	8440B269B	1	1	1	1	1	1	1	1
24	Grommet, Rubber	8108A014	2	2				2		
25	Bushing	8440A271	2	2				2		
26	Hole Plug	8470A047			2	2	2		2	2
27	Retaining Band Assy.	8440B160	1	1	1	1	1	1	1	1
28	Nameplates SERIES A2									
	FB11*012	8146A160-21	1							
	FBH11*012	8146A160-22		1						
	FB12*012	8146A160-23			1					
	FBH12*012	8146A160-24				1				
	FBH12M*012	8146A160-25					1			
	Nameplates SERIES A2F									
	FBH11*012	8146A160-26						1		
	FBH12*012	8146A160-27							1	
	FBH12M*012	8146A160-29								1
29	Magnet Assy.	8440A274	1	1				1		
30	Bushing, Strain Relief	8440A301	1	1	1	1		1	1	
	Bushing, Strain Relief	8440A302					1			1
31	Plug & Cable Assy., Domestic	8440B015	1	1						
	Plug & Cable Assy., Foreign	8440A341						1		
	Koiled Kord Assy.	8440A295					1			1
32	Cover Plate	8440A111					2			2
33	Spring	8440A114					1			1
34	Socket Washer Assy.	8440A140					1			1
35	Swivel Ball	8440A116					1			1
36	Roll Pin	7091A012					1			1
37	Ball Socket	8440A112					1			1
38	Mast #3	8440B133					1			1
39	Mast #2	8440B132					1			1
40	Retaining Ring	8440A110					1			1
41	Mast Assy. #1	8440B131-01					1			1
42	Clamp	8440A121					2			2
43	Rubber Bumper	8440A138					1			1
44	Mounting Bracket Left Hand	8440C130					IAR			IAR
	Mounting Bracket Right Hand	8440C139					IAR			IAR
Not Shown	Cover	8440B096	IAR	IAR	IAR	IAR	IAR	IAR	IAR	IAR

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, series, voltage, description, and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

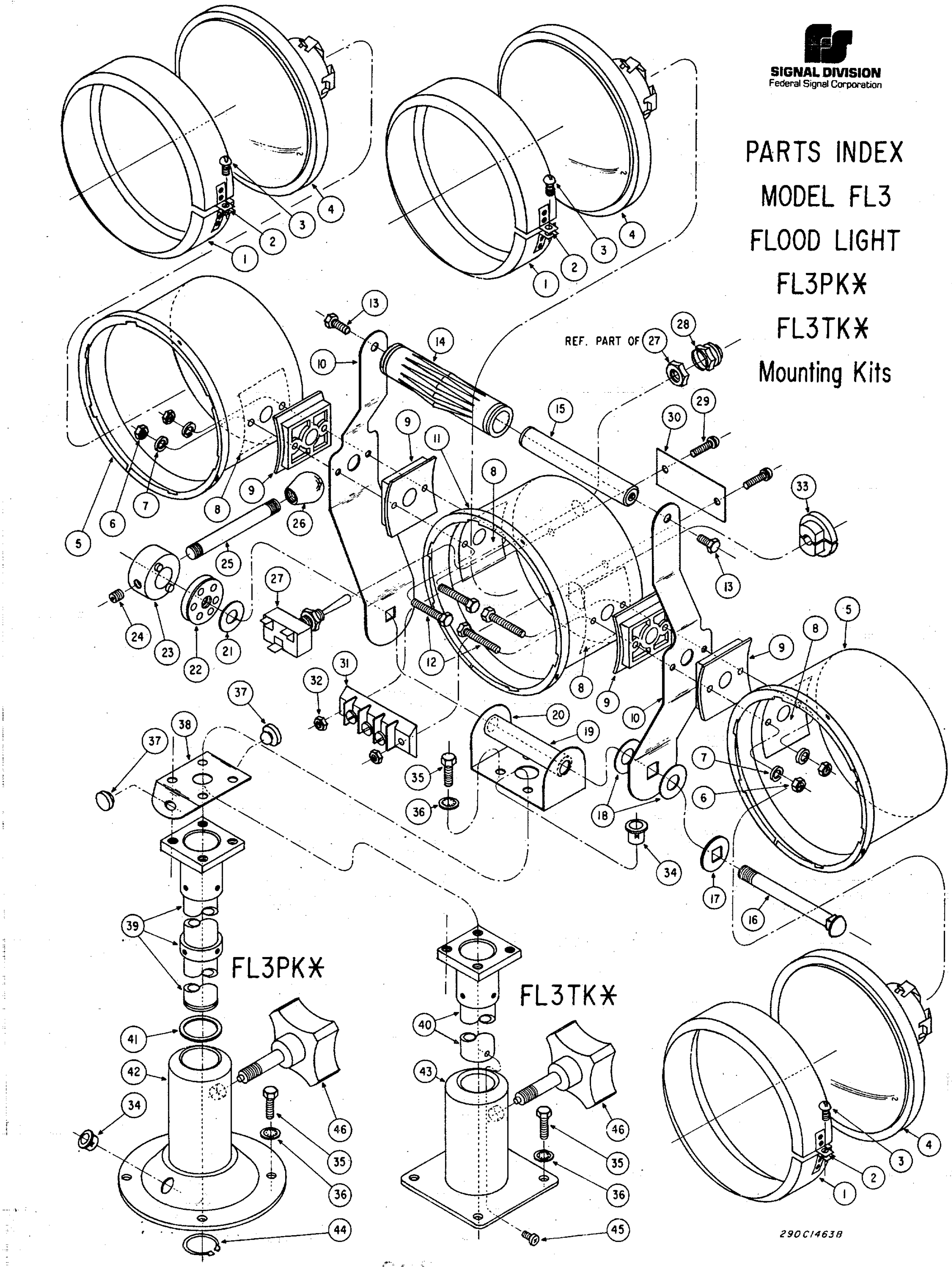
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PARTS INDEX
MODEL FL3
FLOOD LIGHT
FL3PK*
FL3TK*
Mounting Kits



Model FL3 FLOOD LIGHT

PPL 0159 FL3PK* and FL3TK* MOUNTING KITS AUGUST 1981

PARTS LIST

Item No.		Description		Part No.	Qty.
1		Band Assembly, Retaining		8546B031	3
2		#8 Washer, Flat (between mounting flanges of item one)		7072A187	3
3		8-32 x 1/2 Screw, Machine, Rd. Hd.		7000A063-08	3
4		Lamp, 12V 100W, West No. 4007		8107A117	3
5		Housing Assembly, End Section		8546D047-01	2
6		1/4-20 Nut, Hex, Dbl. Cham.		7059A018	4
7		1/4 Lockwasher, Split		7074A015	4
8		Plate, Backing		8546A011	4
9		Spacer, Flange		8546B004	4
10		Bracket, Mounting		8546C043	2
11		Housing Assembly, Center Section		8546D047-02	1
12		1/4-20 x 1-1/2 Screw, Machine, Hex Hd.		7000A307-24	4
13		1/4-20 x 1/2 Screw, Machine, SS Hex Hd.		7003A311-08	2
14		Grip, Handle		8546A020	1
15		Handle		8546A012	1
16		3/8-16 x 4 Bolt, Sq. Neck, Carriage		7004A018-64	1
17		Spacer, Locking Mechanism		8546A040	2
18		Spacer, Phenolic, 1-11/16 OD		8546A060	2
19		Sleeve		8546A006	1
20		Bracket, Yoke		8546C042	1
21		Spacer, Polyethelene, 1-1/4 OD		8546A059	1
22		Hub, Locking Mechanism		8546A038	1
23		Collar and Pin Assembly		8546A039	1
		Collar		8546A037	AR
		Pin		8546A036	AR
24		3/8-16 x 1/2 Screw, Set, Soc. Hd. Dg. Pt.		7008A022-08	1
25		Stud		8546A046	1
26		Knob		8546A044	1
27		Switch, Toggle, 3 Pos. SPDT		122A185	1
28		Boot, Rubber		8546A033	1
29		8-32 x 5/8 Screw, SS, Rd. Hd. Slt.		7000A063-10	2
30		Nameplate, FL3 Flood Light		8146A773	1
31		Block, Terminal, 3 Positions		8542A080-01	1
32		8-32 Nut, Hex, SS, Dbl. Cham.		7059A073	2
33		Bushing, Strain Relief		8546A028	1
34	°	Bushing, SB 562-7	FL3PK*	231A140	2 AR
	°	Bushing, SB 562-7	FL3TK*	231A140	1 AR
35	°	1/4-20 x 1/2 Screw, Machine, SS, Hex Hd.		7000A311-08	8
36	°	1/4 Lockwasher, SS, Int. Th.		7075A067	8
37	°	Bumper, Rubber		8108A020	2
38	°	Bracket, Bumper Mounting		8546B041	1
39	°	Tube Assembly, Short	FL3PK*	8546A054	1 AR
40	°	Tube Assembly, Long	FL3TK*	8546A045	1 AR
41	°	Spacer, Nylon	FL3PK*	8546A052	1 AR
42	°	Stand Assembly	FL3PK*	8546A053	1 AR
43	°	Stand Assembly	FL3TK*	8546A017	1 AR
44	°	Ring Retainer	FL3PK*	8546A051	1 AR
45	°	8-32 x 3/8 Screw Taptite, Pan Hd. , Phil.	FL3TK*	7011A060-06	1 AR
46	°	Knob Assembly		8546A056	1
Not Shown					
	°	Instruction Sheet		256A397	1
	°	Parts indicated are in FL3PK* and FL3TK* Mounting Kits.			

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, description, and part number.

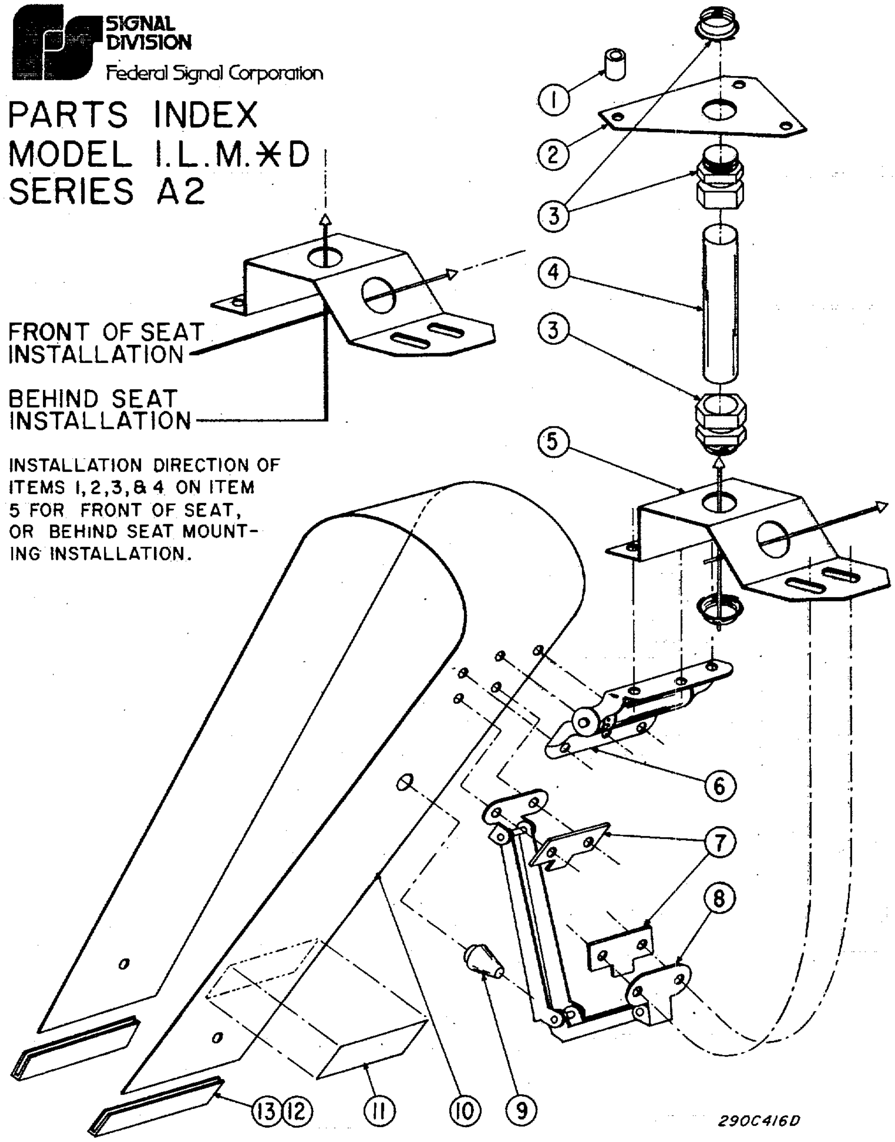
Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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PARTS INDEX
MODEL I.L.M.*D
SERIES A2



PPL0109
PARTS LIST

MODEL I. L. M. * D
SERIES A2

AUGUST 1981

Index No.	Description	Part No.	Qty.
1	Spacer	8478A008	3
2	Base Plate	8478B007	1
3	Connector	8287A199	2
4	Tube	8478A009	1
5	Support Plate	8478B015A	1
6	Adjustable Hinge	8478A005	1
7	Hinge Support Plate	8478A014	2
8	Support Hinge	8478B004	1
9	Bumper	8478A006	1
10	Support	8478C016A	1
11	Nameplate	8146A593A	1
12	Channel	8478A020A	2
13	Rubber Adhesive	8474A062	AR
Not Shown	Accessories Kit	8478A019A	1

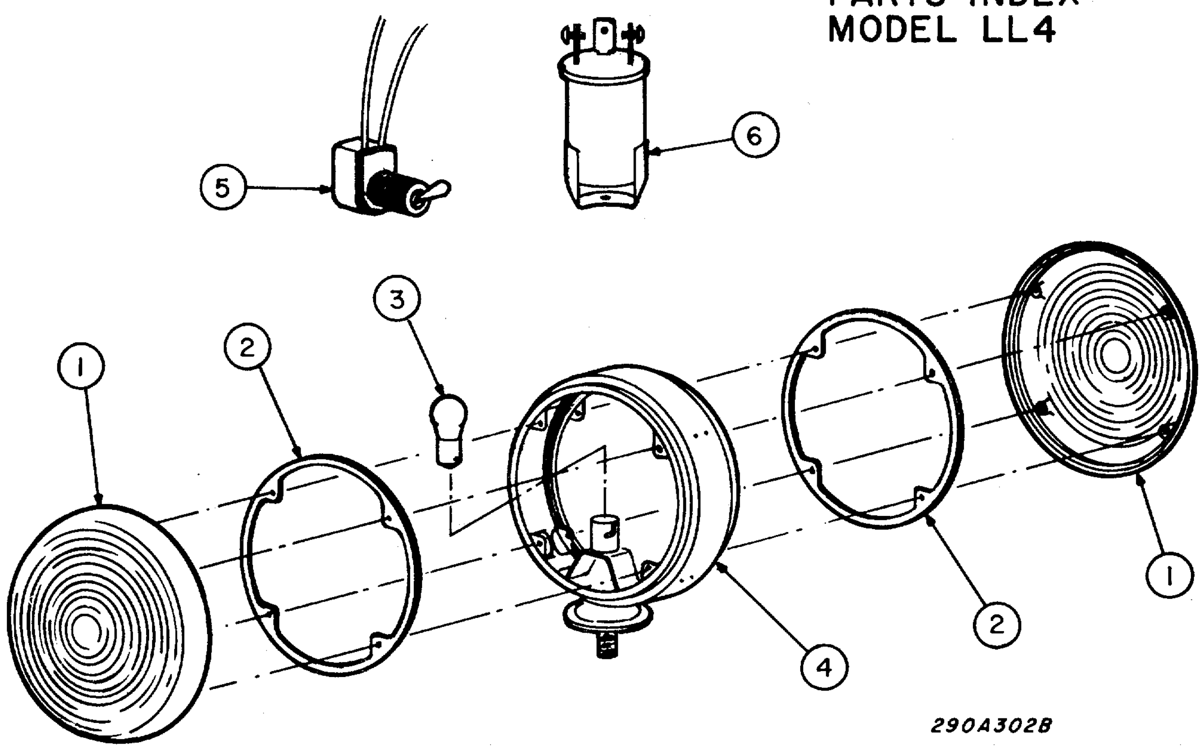
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PARTS INDEX
MODEL LL4



PPL0019
PARTS LIST

MODEL LL4 LIGHT

AUGUST 1981

Index No.	Description	Part No.	Qty.
1	Lens, Amber	8285A213-02	2AR
	Lens, Blue	8285A213-03	
	Lens, Clear	8285A213-04	
	Lens, Red	8285A213-05	
2	Gasket	8285A211	2
3	Lamp, 12-volt (GE #1073)	8107A052	1AR
	Lamp, 24-volt (GE #309)	8107A041	
4	Housing Assy.	8285A212	1
5	*Toggle Switch	8226A109	1
6	*Flasher, 12 volt	8285A028	1AR
	*Flasher, 24-volt	8226A187-02	
Not Shown	Spacer Block	8422A165	

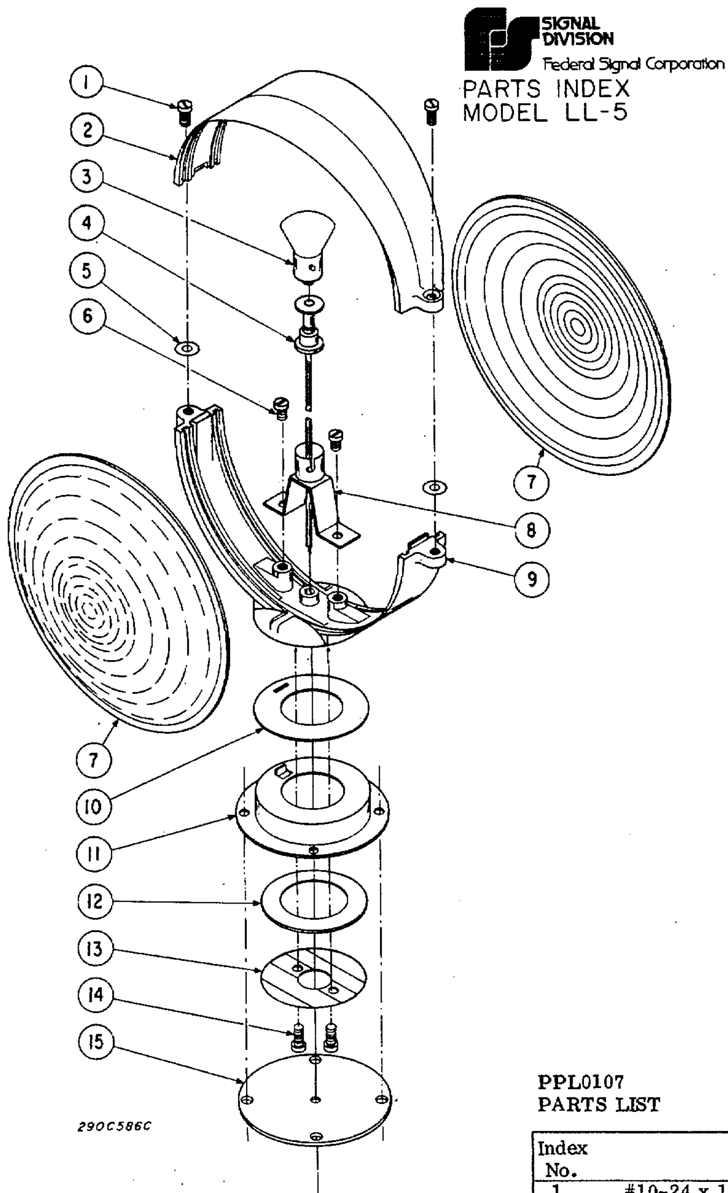
*Not supplied with Light.

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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EMERGENCY WARNING LIGHT
MODEL LL-5

PPL0107
PARTS LIST

AUGUST 1981

Index No.	Description	Part No.	Qty.
1	#10-24 x 1/2 Fil. Hd. Mach. Screw	7000A171-08	2
2	Upper Lens Housing, Chrome	8287C226	1
3	Bulb 12V (GE1195)	8440A108	1
4	Wire Assembly	8287A239	1
5	Nylon Washer	7076A005	2
6	#8-32 x 5/16 Pan Hd. Screw	7011A080-05	2
7	Plastic Lens - Red	8287C222-01	2AR
	Plastic Lens - Amber	8287C222-02	
	Plastic Lens - Blue	8287C222-03	
	Plastic Lens - Clear	8287C222-04	
8	Bulb Socket Assembly	8287B230	1
9	Lower Lens Housing, Chrome	8287C231	1
10	Friction Washer	8287A232	1
11	Mounting Base	8287B238	1
12	Plain Washer	8287A235	1
13	Spring Washer	8287A236	1
14	#1/4-20 x 3/8 Pan Hd. Mach. Screw	7000A412-06	2
15	Rubber Mounting Pad	8287A237	1

DO NOT ORDER PARTS BY INDEX NUMBER.
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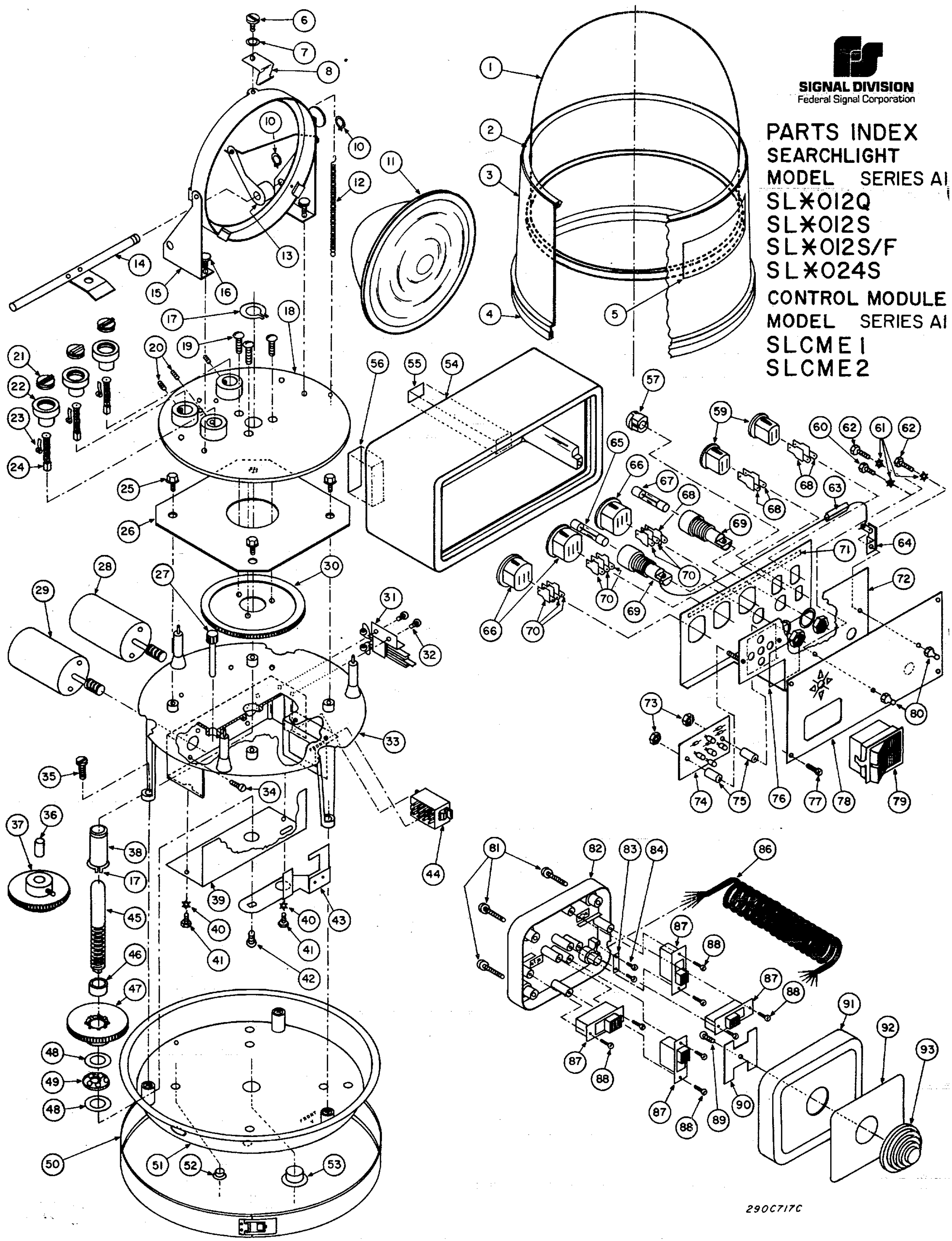
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PARTS INDEX
SEARCHLIGHT
MODEL SERIES AI
SL✱012Q
SL✱012S
SL✱012S/F
SL✱024S

CONTROL MODULE
MODEL SERIES AI
SLCME1
SLCME2



FEDERAL S[illegible]L CORPORATION

PPL0113
PARTS LIST

VISIBEAM® SEARCHLIGHT
MODELS: SL*012Q, SL*012S, SL*012S/F, SL*024S

Item No.	Description	Part Number	Qty	Model Used On
1	Dome, Clear Lexan	8441C192-05	1	all
2	Gasket, Dome	8441A040	1	all
3	Housing Assembly	8540C092A	1	all
4	Gasket	8540A049A	1	all
5	Nameplate, Visibeam 12V	8146A604A	1AR	12V
	Nameplate, Visibeam 24V	8146A604-02	1AR	24V
6	8-32 x 3/8 Truss Hd. Mach. Scr.	7000A452-06	1	all
7	Washer, Flat	7072A009	1	all
8	Spring, Lamp	8540A029A	1	all
10	Ring, Retainer	8253A118	2	all
11	Lamp (Single GE4509 X) 12V	8107A093A	1AR	SL*012S
	Lamp (Dual GE4700) 13V	8107A086	1AR	SL*012S/F
	Lamp (Quartz Q7400 PAR 36)	8107A094	1AR	SL*012Q
	Lamp (GE 4591) 28V	8107A113	1AR	SL*024
12	Spring, Extension	8540A027A	1	all
13	Crank Assembly	8540A039A	1	all
14	Rocker Arm Assembly	8540A036A	1	all
15	Lamp Holder Assembly	8540C009A	1	all
16	8-32 x 1/4 Hex. Hd. Taptite Scr.	7011A043-04	4	all
17	Ring, Retainer	8540A053A	2	all
18	Base, Lamp	8540C003A	1	all
19	6-32 x 5/8 Rd. Hd. Slt. Mach. Scr.	7006A028-10	3	all
20	8-32 x 1/4 Allen Hd. Set Scr.	7008A012-04	3	all
21	Cap	8540A043	3	all
22	Holder, Brush	8540A044A	3	all
23	Clip	8540A042A	3	all
24	Brush and Spring	8540A050A	3	all
25	6-32 x 1/4 Hex. Wsh. Hd. Taptite Scr.	7011A061-04	4	all
26	Ring, Collector	8540D054A	1	all
27	Gear, Pinion	8540A020A	1	all
28	Motor & Terminal 12V	8540A145A	1AR	12V
	Motor & Terminal 24V	8540B055-02	1AR	24V
29	Motor 12V	8540B055A	1AR	12V
	Motor 24V	8540A145-01	1AR	24V
30	Gear, Spur	8540A026	1	all
31	Switch Assembly	8540A119	2	all
32	6-32 x 1/4 Rd. Hd. Slt. Mach. Scr.	7006A006-04	2	all
33	Base, Mounting	8540D002B	1	all
34	6-32 x 3/16 Rd. Hd. Slt. Mach. Scr.	7006A028-03	4	all
35	8-32 x 3/8 Wsh. Rd. Hd. Slt. Mach. Screw	7006A034-06	3	all
36	Bearing	8540A021A	1	all
37	Worm Gear Clutch Assembly	8540A037A	1	all
38	Bearing	8540A024A	1	all
39	Cover, Gear Box	8540A030A	1	all
40	Lockwasher	7075A002	2	all
41	6-32 x 5/16 Hex. Hd. Taptite Scr.	7011A097-05	2	all
42	8-32 x 5/16 Sems Rd. Hd. Slt. Mach. Screw	7006A034-05	1	all
43	Switch Activator Assy.	8540A038A	1	all
44	Connector, Plug , 12 pin	139A152	1	all
45	Shaft	8540A016A	1	all
46	Spacer, Gear	8540A023A	1	all
47	Gear Assembly	8540A040A	1	all
48	Washer, Thrust	8449A021	2	all
49	Retainer, Thrust	8449A022	1	all
50	Retaining Band Assembly	8540C048A	1	all
51	Base Plate Assembly	8540C006A	1	all
52	Hole Plug	8540A090A	4	all
53	Hole Plug	8422A063	2	all

CONTROL MODULE
MODEL SLCME1*012, SLCME2*012, SLCME1*024

AUGUST 1981

Item No.	Description	Part Number	Qty.	Model Used On
54	Housing Assembly, Vinyl Jacket	8474B022	1	all
55	Legend Plate (3AG Fuse) 1 Amp.	148A106	1	all
56	Nameplate (Single Extended)	8146A498H-13	1AR	SLCME1
	Nameplate (Dual Extended)	8146A498H-14	1AR	SLCME2
57	Bushing	231A106	1	all
59	Terminal Bushing (2 Cond)	8540A080A	2	all
60	6-32 x 5/16 Hex. Hd. Mach. Scr.	7000A309-05	1	all
61	Lockwasher	7075A002	2	all
62	6-32 x 3/8 Hex. Hd. Mach. Scr.	7000A309-06	1	all
63	Resistor 10 ohm, 10%, 5W	8540A120	1	all
64	Terminal Strip	229A112	1	all
65	Fuse 1 Amp 3 AG	148A106	1	all
66	Terminal Bushing (3 Cond)	8540A081A	3	all
67	Fuse 10 Amp. 3AG 32V	148A108	1	all
68	Terminal (1/4 W)	8540A079-02	5	all
69	Fuseholder	143A106	2	all
70	Terminal (3/16 W)	8540A079-01	8	all
71	Legend Plate 12V	8540A076A	1AR	12V
	Legend Plate 24V	8540A076A-01	1AR	24V
72	Chassis and Stud Assembly	8540A083A	1	all
73	6-32 Keps Nut	7058A035	2	all
74	P.C. Board Assy. 12V (Dual)	8540B085A	1AR	SLCME2
	P.C. Board Assy. 12V (Single)	8540B096A	1AR	SLCME1
	P.C. Board Assy. 24V	8540B096A-01	1AR	SLCME1
75	Spacer 1/4 OD x 1/2 Lg.	8540A078-01	2	all
76	Diffuser	8540A095	1	all
77	6-32 x 1/4 Phillips Pan Hd. Mach. Scr.	7000A406-04	4	all
78	Legend Plate (Dual)	8540B059A	1AR	SLCME2
	Legend Plate (Single)	8540B089A	1AR	SLCME1
79	Rocker Switch (Dual)	8540A067A	1AR	SLCME2
	Rocker Switch (Single)	8540A093A	1AR	SLCME1
80	Retainer , Stud	8540A060A	2	all
81	6-32 x 11/16 Phillips Pan. Hd. Thd. Form. Scr.	7011A066-11	4	all
82	Housing and Stud Receiver Assembly	8540A087A	1	all
83	Cord Strap	8540A063A	1	all
84	4-40 x 1/4 Phillips Pan Hd. Self Tap Scr.	7011A096-04	2	all
86	Cord Coil	8540A069A	1	all
87	Momentary Slide Switch	8540A045A	4	all
88	4-40 x 3/8 Phillips Pan Hd. Self Tap Scr.	7011A096-06	8	all
89	Screw, Actuator, Knob	8540A115A	1	all
90	Actuator Plate	8540A062A	1	all
91	Housing Top	8540C058A	1	all
92	Legend Plate	8540A071A	1	all
93	Control Knob, Actuation	8540B065A	1	all

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description, and part number.

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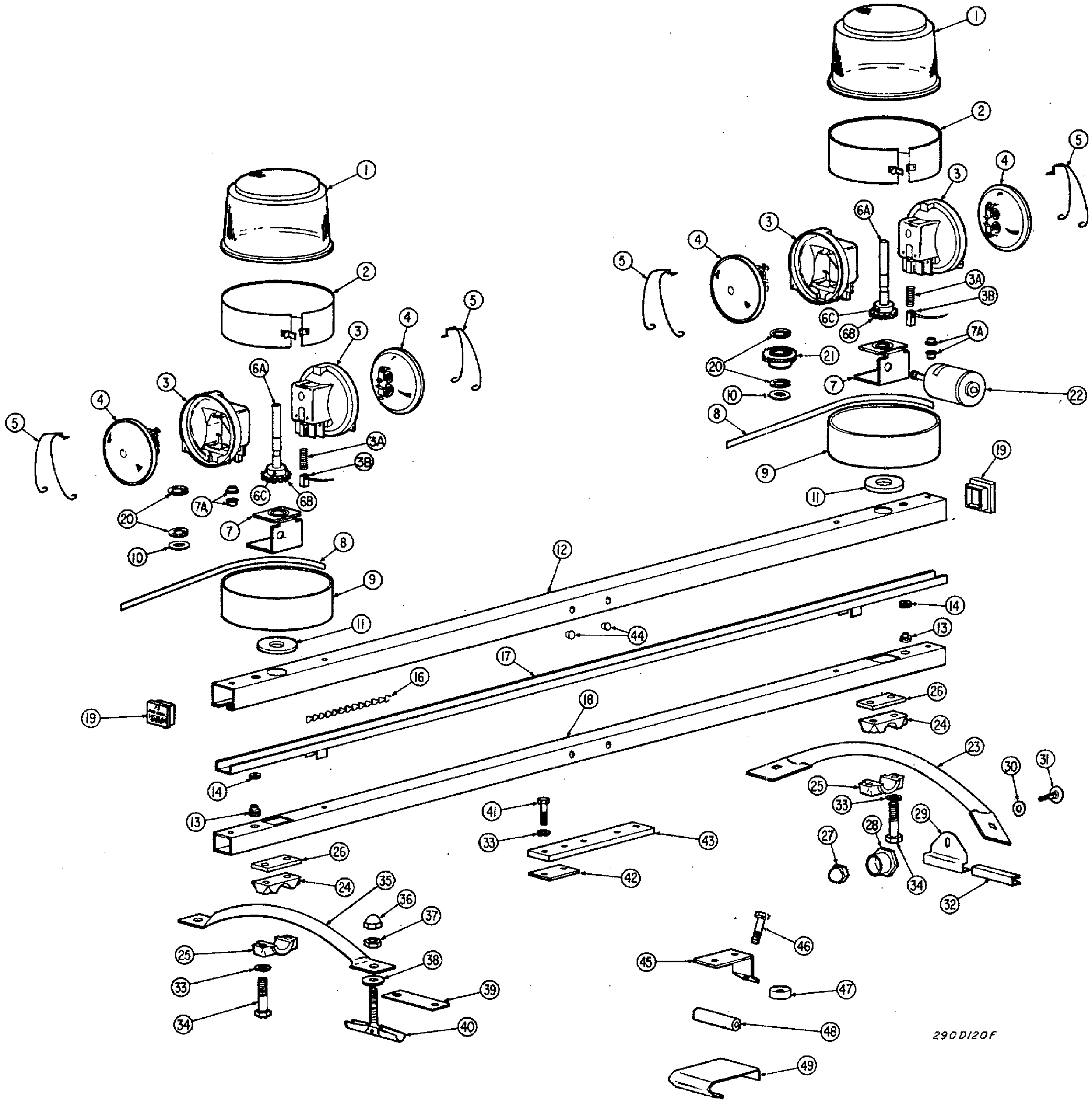
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PARTS INDEX
MODEL 11
SERIES A3



Twin Beacon Ray®
Model 11

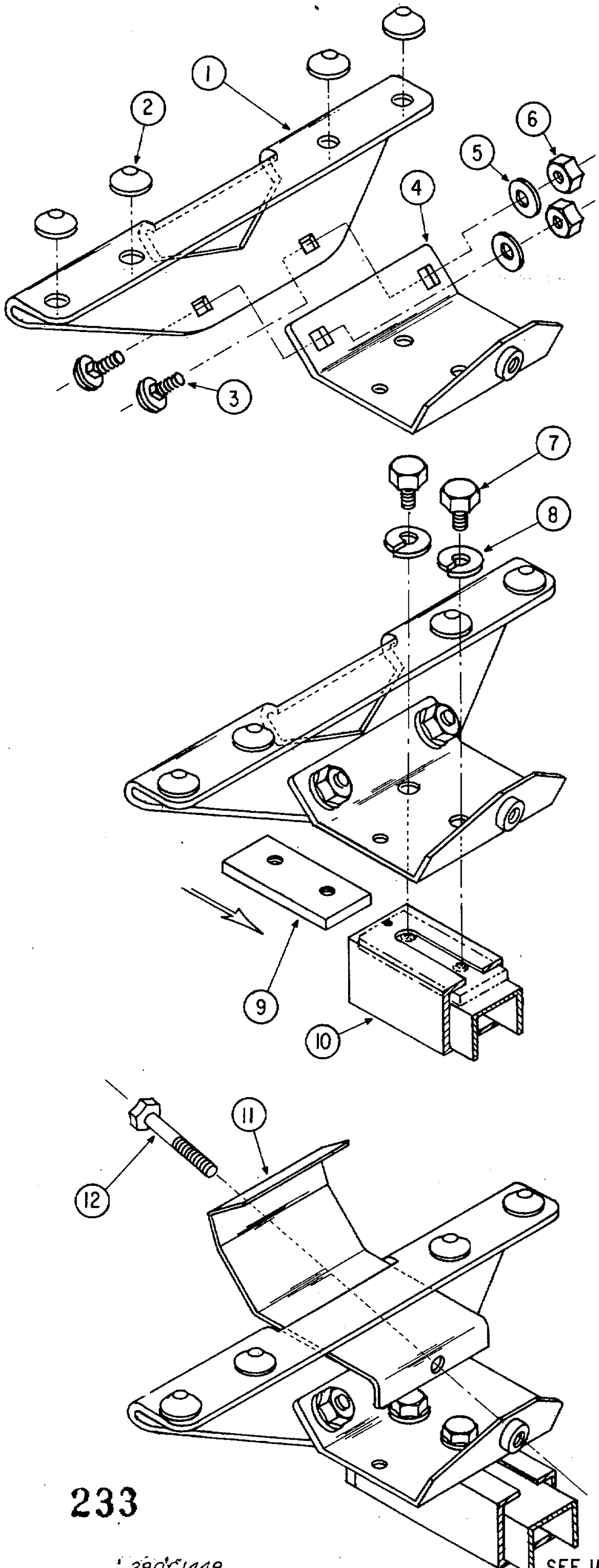
Index	Description	Part Number	Qty.
1	Dome, Red	8422C002-01	2AR
	Dome, Blue	8422C002-02	
	Dome, Amber	8422C002-04	
	Dome, Clear	8422C002-05	
	Split Dome, Red-Amber	8422C160-01	
	Split Dome, Red-Blue	8422C160-02	
	Split Dome, Amber-Blue	8422C160-03	
	Split Dome, Red-Clear	8422C160-04	
2	Retaining Band Assembly	8422C025	2
3	Lamp Holder Assembly (includes items 3A, 3B, & 5).	8422B210	4
3A	Spring	8240A032	4
3B	Brush	8240A031-01	4
4	Lamp, 6 Volts (#4516)	8107A032	4AR
	Lamp, 12 Volts (#4416)	8107A059	
	Lamp, 24 Volts (#4505)	8107A027	
	Lamp 12V For Q Models (H7600)	8107A103	
5	Lamp Clamp Wire (part of item 3)	8422B016	4
6A	Shaft	8422A330	2
6B	Sprocket	8422A053	2
6C	Roll Pin	7091A017	2
7	Motor Bracket and Collector Ring Assy. (less item 7A)	8422A323	2
7A	Bearing	8422A011	4
8	Gasket	8422A020	2
9	Housing	8422C003-01	2
10	Washer	7072A139	2
11	Gasket	8422A042	2
12	Cover, Stainless Steel	8422C046	1
13	Grommet	8108A011	2
14	Grommet	8108A018	2
16	Chain	8422A061	1
17	Chain Support Assembly	8422B044	1
18	Mounting Support Bar	8422C047	1
19	End Cap	8422A319	2
	End Cap -- Service Parts (includes 2 of item 19 and mtg. hardware)	8422A357	AR
20	Retaining Ring	8422A010	4
21	Worm Gear and Clutch Assembly	8422A114-A1	1
22	Motor, 6-Volt	8422B111-04	1AR
	Motor, 12-Volt	8422B111-25	
	Motor, 24-Volt	8422B111-26	
23	Gutter Mounting Bracket (Clamp-on)	8422D048	2AR
23A	Special High Crown Gutter Mounting Bracket	8422D048-01	2AR
24	Mounting Bracket Clamp (upper)	8422C060-02	2
25	Mounting Bracket Clamp (lower)	8422C060-01	2
26	Clamp Block	8422A041	2
27	Cap Nut	7054A003	4AR
28	Cam	8422A051-01	4AR
29	Gutter Hook	8422A050	4AR
30	Flat Washer	7072A141A	4AR
31	Carriage Bolt	8422A189	4AR
32	Rubber Channel	8422A086	4AR
33	3/8 Split Lockwasher		4AR
34	3/8-16 x 2" Hex Head Bolt		4AR
35	Permanent Mounting Bracket (Bolt-on)	8422C049	2AR
36	Cap Nut	8422A057	4AR
37	Jam Nut	7057A049A	4AR
38	Rubber Mounting Pad	8422A087	4AR
39	Ground Strip	8240A023	2AR
40	Toggle Bolt	8422A032	4AR
41	3/8-16 x 1¼" Hex Head Bolt		4AR
42	Spacer Block	8422A193	2AR
43	Extension Bar	8422A194	2AR
44	Hole Plug (one located in Housing of slave light)	8422A063	3
45	Adapter Bracket	8422A245	2AR
46	5/16-18 x 1-3/8" Hex Head Bolt		2AR
47	Bumper	8422A249	4AR
48	Spacer, Rubber	8422A307	2AR
49	Hook Assy.	8422A285	2AR
Not Shown	Switch	8240A033	1
	Hole Plug (five located in Housing of each light)	8422A159	10
	Entire assembled slave Beacon Ray Light (without motor). Includes items 1 thru 10, 15, 20 and miscellaneous hardware.	8422C197	
	Entire assembled motorized Beacon Ray Light. Includes items 1 thru 10, 15, 20, 21, 22 and miscellaneous hardware.	8422C198	
	VKWD*, Wind Deflector (Accessory)	8422A217	AR

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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MODEL 11HK*3

HOOK-ON MOUNTING KIT

11HK*3 HOOK-ON MOUNTING KIT
Model 11 Twin Beacon Ray®

PPL 0154 AUGUST 1981
PARTS LIST

Item No.	Description	Part No.	Qty.
1	Mounting Bracket	8542C285	2
2	Rubber Bumper	8542A146	8
3	5/16-18 x 3/4 SS Carriage Bolt	7017A023-12	4
4	Mounting Adapter	8542A300	2
5	5/16 Flat SS Washer	7072A031	4
6	5/16-18 SS Hex Nuts	7057A027	4
7	5/16-18 x 1/2 SS Hex Hd. Cap Screw	7002A005-08	4
8	5/16 Split SS Lockwasher	7074A020	4
9	Clamp Block	8422A374	2
10	Visibar Assembly		
11	Hook	8542B283	2
12	5/16-18 x 1-3/4 * 5/16-18 x 2-1/2 * SS Adjustment Bolt	7002A005-28 7002A005-40	2 2
Not Shown	Instruction Sheet	256A387	1
	* Both are supplied, use length that best fits your vehicle.		

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, description, and part number.

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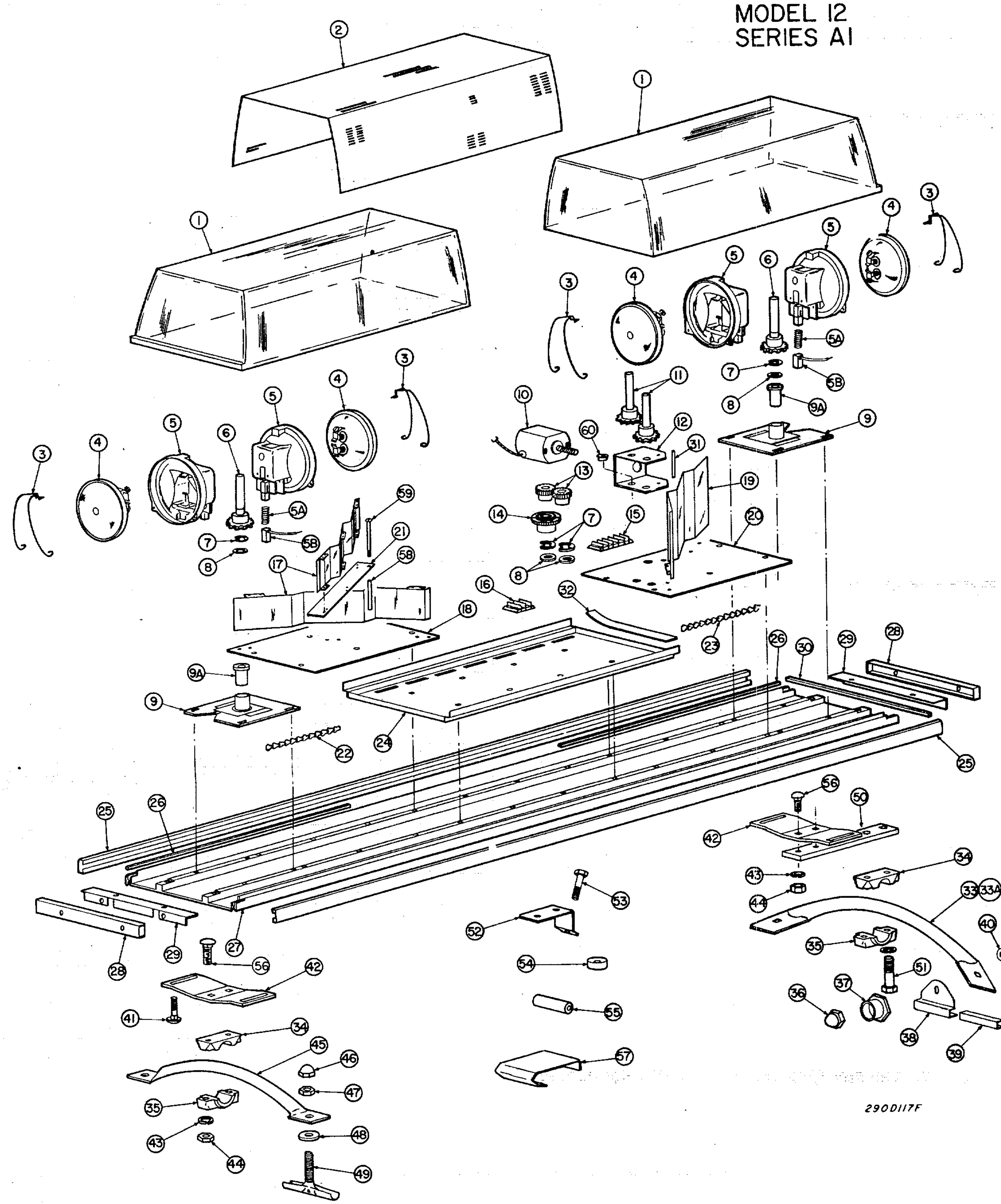
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290C1449

SEE INSTRUCTION SHEET 256A387 BEFORE ASSEMBLY OF ITEMS 11 AND 12.

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PARTS INDEX MODEL 12 SERIES A1



FEDERAL SIGNAL CORPORATION

TwinSonic® Model 12

Index No.	Description	Part No.	Qty.
1	Housing, Red Lexan	8470D004-11	2AR
	Housing, Blue Lexan	8470D004-12	
	Housing, Amber Lexan	8470D004-14	
	Housing, Clear Lexan	8470D004-15	
	Housing, Blue With Red Inserts	8470D104-05	
2	Grille	8470D041	1
3	Lamp Clamp Wire	8422B016	4
4	Lamp, 6-Volt Clear (GE#4516	8107A032	4AR
	Lamp, 12-Volt, 60W Clear (GE#4464)	8107A066	
	Lamp, 12-Volt, 60W Red (GE#4464R)	8107A068	
	Lamp, 12-Volt, 30W Amber (GE#4416A)	8107A059	
	Lamp, 24-Volt, 50W Clear (GE#4505)	8107A027	
	Lamp, 24-Volt, 50W Red (GE#4505R)	8107A060	
	Lamp, 24-Volt, 50W Blue (GE#4505B)	8107A058	
	Lamp, 12-Volt, 30W Blue (GE#4416B)	8107A057	
5	Lamp Holder Assy. (includes items 5A and 5B)	8422B019	4
5A	Spring	8240A032	4
5B	Brush	8240A031-01	4
6	Sprocket and Shaft Assembly	8470A117	2
7	Retaining Ring	8422A010	4
8	Flat Washer	7072A139	6
9	Mounting Plate Assy. (includes item 9A)	8470A031	2
9A	Bearing	8470A030	2
10	Motor, 6-Volt	8422B111-04	1AR
	Motor, 12-Volt	8422B111-05	
	Motor, 24-Volt	8422B111-26	
11	Drive Shaft and Sprocket	8470A116	2
12	Motor Bracket Assy.	8470C011	1
13	Spur Gear	8470A010	2
14	Worm Gear Clutch Assy.	8422A114	1
15	Terminal Block (4 Terminals)	8442A034	1
16	Terminal Block (2 Terminals) used with item 24A	8442A032	1
17	Mirror and Bracket Assy. (Dual Direction Flashing)	8470B137	4AR
18	Cover Plate, Mirror (Right Side)	8470C026	1
19	Mirror Assembly, Front Flashing (Left Side-Shown)	8470B022	1AR
	Mirror Assembly, Front Flashing (Right Side-Not Shown)	8470B023	1AR
20	Cover Plate, Mirror and Motor (Left Side)	8470C027	1
21	Support, Mirror (Dual Direction Flashing)	8470B139	2AR
22	Chain	8470A044	1
23	Chain	8470A043	1
24A	Speaker Mounting Plate Assy. (blk. anodized aluminum) (requires use of item 16)	8470C037	1AR
24B	Speaker Mounting Plate (cream -- molded plastic) (with molded in terminal block)	8470D235	
25	Moulding	8470B006	2
26	Gasket (Mounting Base)	8470A134	4
27	Mounting Base	8470D007	1
28	End Cap	8470B019	2
29	End Plate Assy.	8470A068	2
30	Gasket (End Plate)	8470A040	2

Index No.	Description	Part No.	Qty.
31	Motor Bracket Spacer	8470A017	1
32	Gasket	8470A146	2
33	Gutter Mounting Bracket (Clamp-on)	8422D048	2AR
33A	Gutter Mounting Bracket, Hi-Bar	8422D048-01	2AR
34	Mounting Bracket Clamp (upper)	8422C060-02	2
35	Mounting Bracket Clamp (lower)	8422C060-01	2
36	Cap Nut	7054A003	4AR
37	Cam	8422A051-01	4AR
38	Gutter Hook	8422A050	4AR
39	Rubber Channel	8422A086	4AR
40	Flat Washer	7072A141	4AR
41	Carriage Bolt (4 used on Gutter mount, 4 secure item 42 to item 27)	8422A189	8AR
42	Adapter Plate	8470B032	2
43	3/8 Split Lockwasher	7074A023	4AR
44	3/8-16 Hex. Nut	7057A032	4AR
45	Permanent Mounting Bracket (Bolt-on)	8422C049	2AR
46	Cap Nut	8422A057	4AR
47	Jam Nut	7057A049	4AR
48	Rubber Mounting Pad	8422A087	4AR
49	Toggle Bolt	8422A032	4AR
50	Extension Bar	8422A194	2AR
51	3/8-16 x 2" Hex. Head Bolt	7000A312-32	4AR
52	Adapter Bracket	8422A245	2AR
53	5/16-18 x 1-3/8" Hex. Head Bolt	7000A319-022	2AR
54	Bumper	8422A249	4AR
55	Rubber Spacer	8422A307	2AR
56	Carriage Bolt	7004A004-32	4
57	Hook Assy. (Ford)	8422A285	2AR
58	Spacer, Mirror	8470A141	2AR
59	Screw, 8-32 x 3" long	7000A061-48	2AR
60	Bearing	8422A011	4
Not Shown	Switch	8470A094	1
	Hole Plug (large)	8422A063	1
	Hole Plug (small)	8470A047	12
	Dome Gasket Conversion Kit. Includes items 26 and 32.	8470A147	
	Switch , 15Amp (ivory)	8240A033	AR
	Mtg. Kit for SLTK* (with out grill)	8540A073A	AR
	Grill (for TwinSonic with Visabeam)	8470D041-04	AR

DO NOT ORDER PARTS BY INDEX NUMBER. Give model, voltage, description and part number.

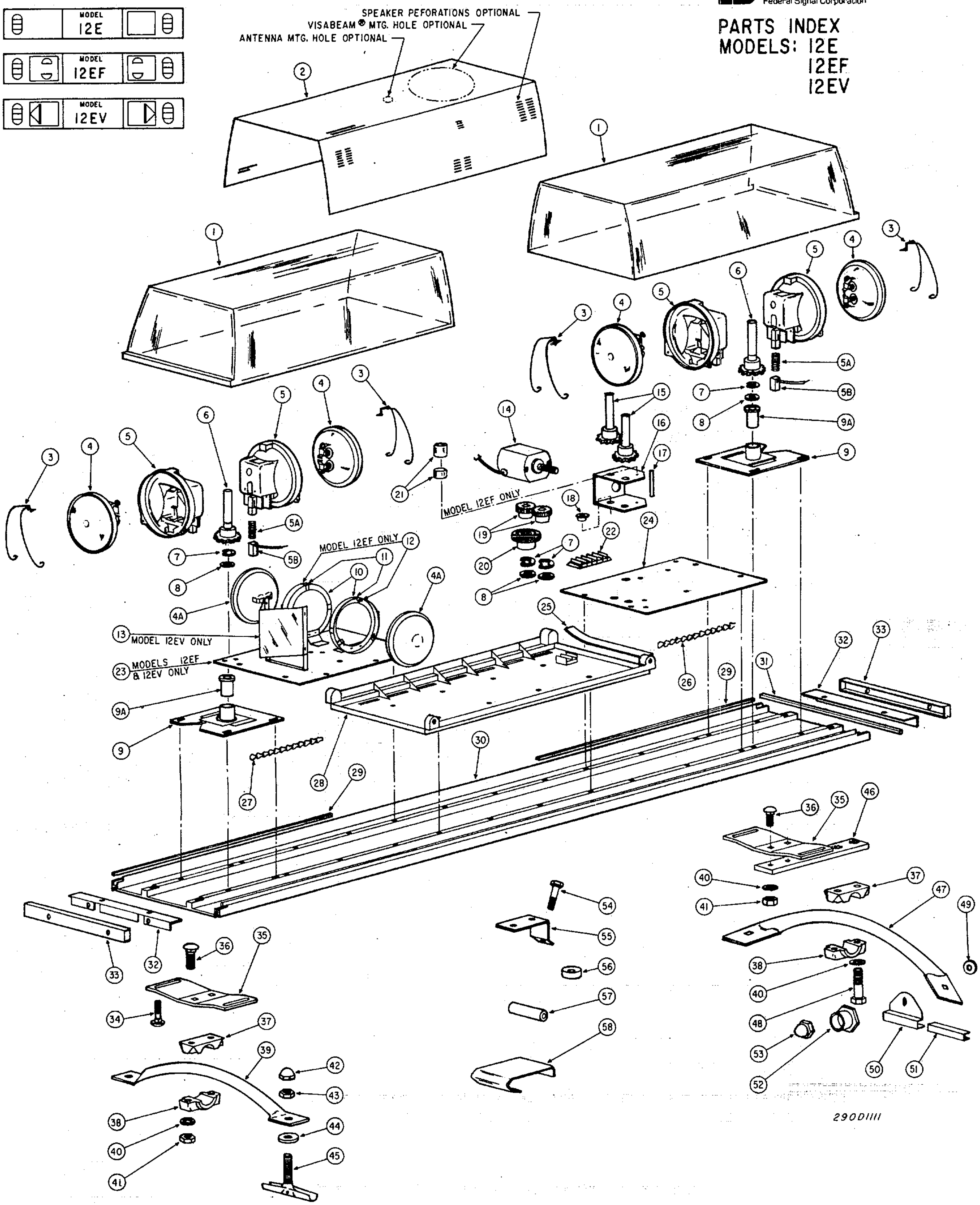
Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

Federal Signal Corporation
Signal Division
136th and Western Avenue
Blue Island, Illinois 60406

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SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX
MODELS: 12E
12EF
12EV



Index No.	Description		Part No.	Qty.
1	Housing, Red Lexan		8470D004-11	2AR
	Housing, Blue Lexan		8470D004-12	
	Housing, Green Lexan		8470D004-13	
	Housing, Amber Lexan		8470D004-14	
	Housing, Clear Lexan		8470D004-15	
	Housing, Blue with Red Inserts, Lexan		8470D104-05	
2	Grille, Perforated for use with Speakers			1AR
	Blank Top		8470D251-01	
	Antenna Mtg. Top (3/8" hole)		8470D251-02	
	Visabeam Mtg. Top (6" hole)		8470D251-03	
	Grille, Not Perforated for use without. Speakers			
	Blank Top		8470D251-04	
	Antenna Mtg. Top (3/8" hole)		8470D251-05	
	Visabeam Mtg. Top (6" hole)		8470D251-06	
3	Lamp Wire		8422B016	4
4	Lamp, 35Watt 12V., GE 7400	all models	8107A087	4
4A	Lamp, 18Watt 12V., GE 4414	12EF only	8107A102	4
5	Rotating Lamp, Holder Assembly		8422B019	4
	Includes Items 5A and 5B			
5A	Spring (replacement part)		8240A032	AR
5B	Brush (replacement part)		8240A031-01	AR
6	Sprocket and Shaft Assembly		8470A117	2
7	Retaining Ring		8422A010	4
8	Flat Washer		7072A139	6
9	Mounting Plate Assembly		8470A031	2
	Includes Item 9A			
9A	Bearing (replacement part)		8470A030	AR
10	Stationary Lamp Holder Assy.	12EV only	8542B044	4
11	Spring	12EV only	8540A029	4
12	8-32x 3/8 Screw Trs. Hd. Slt.	12EV only	7000A452-06	4
13	Mirror Assembly	12EV only	8542B093	2
14	Motor, 12Volt		8422B111-25	1
15	Drive Shaft and Socket		8470A116	2
16	Motor Bracket Assembly		8470C011	1
17	Motor Bracket Spacer		8470A017	1
18	Bearing		8422A011	4
19	Spur Gear		8470A010	2
20	Worm Gear Clutch Assembly		8422A114	1
21	Alternating Flasher # 537	12EF only	8285A035	1AR
	Includes Mtg. Clip)			
22	Terminal Block, 5 Terminals		8542A080-02	1AR
	Terminal Block, 4 Terminals		8442A034	
23	Cover Plate (Right Side)	12EF, 12EV only	8470C026-01	1
24	Cover Plate (Left Side)	all models	8470C027-02	1
25	Gasket		8470A164	2
26	Chain		8470A043	1
27	Chain		8470A044	1
28	Speaker Mounting Plate		8470D235	1
29	Gasket Mounting Base		8470A134	4
30	Mounting Base		8470D077	1

Index No.	Description	Part No.	Qty.
31	Gasket, End Plate	8470A040	2
32	End Plate Assembly	8470A068	2
33	End Cap Assembly, 12E	8470B157-24	2AR
	End Cap Assembly, 12EF	8470B157-25	
	End Cap Assembly, 12EV	8470B157-26	
34	Carriage Bolt	8422A189	8AR
	4 used on Gutter Mount		
	4 used to secure item 36 to item 31		
35	Adapter Plate	8470B032	2
36	Carriage Bolt	7004A004-32	4
37	Mounting Bracket (Upper)	8422C060-02	2
38	Mounting Bracket (Lower)	8422C060-01	2
39	Permanent Mtg. Bracket, Bolt-On	8422C049	2AR
40	3/8 Split Lockwasher	7074A023	4AR
41	3/8-16 Hex Nut	7057A032	4AR
42	Cap Nut	8422A057	4AR
43	Jam Nut	7057A049	4AR
44	Rubber Mounting Pad	8422A087	4AR
45	Toggle Bolt	8422A032	4AR
46	Extension Bar	8422A194	2AR
47	Gutter Mtg. Bracket (Clamp-On)	8422D048	2AR
	Gutter Mtg. Bracket (Hi-Bar)	8422D048-01	
48	3/8-16 x 2" Hex. Hd. Bolt	7000A312-32	4AR
49	Flat Washer	7072A141	4AR
50	Gutter Hook	8422A050	4AR
51	Rubber Channel	8422A086	4AR
52	Cam	8422A051-01	4AR
53	Cam Nut	7054A003	4AR
54	5/16-18 x 1-3/8" Hex Hd. Bolt	7000A319-22	2AR
55	Adapter Bracket	8422A245	2AR
56	Bumper	8422A249	4AR
57	Rubber Spacer	8422A307	2AR
58	Hook Assembly (Ford)	8422A285	2AR
Not Shown			
	Switch	8470A094	1
	Hole Plug (Large)	8422A063	1
	Hole Plug (Small)	8470A047	12
	Dome Gasket Conversion Kit	8470A147	AR
	Includes Items 26 and 30		
	Accessory Kit, Model 12EF	8470A256	AR
	Accessory Kit, Model 12EV	8470A216	AR

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description, and part number.

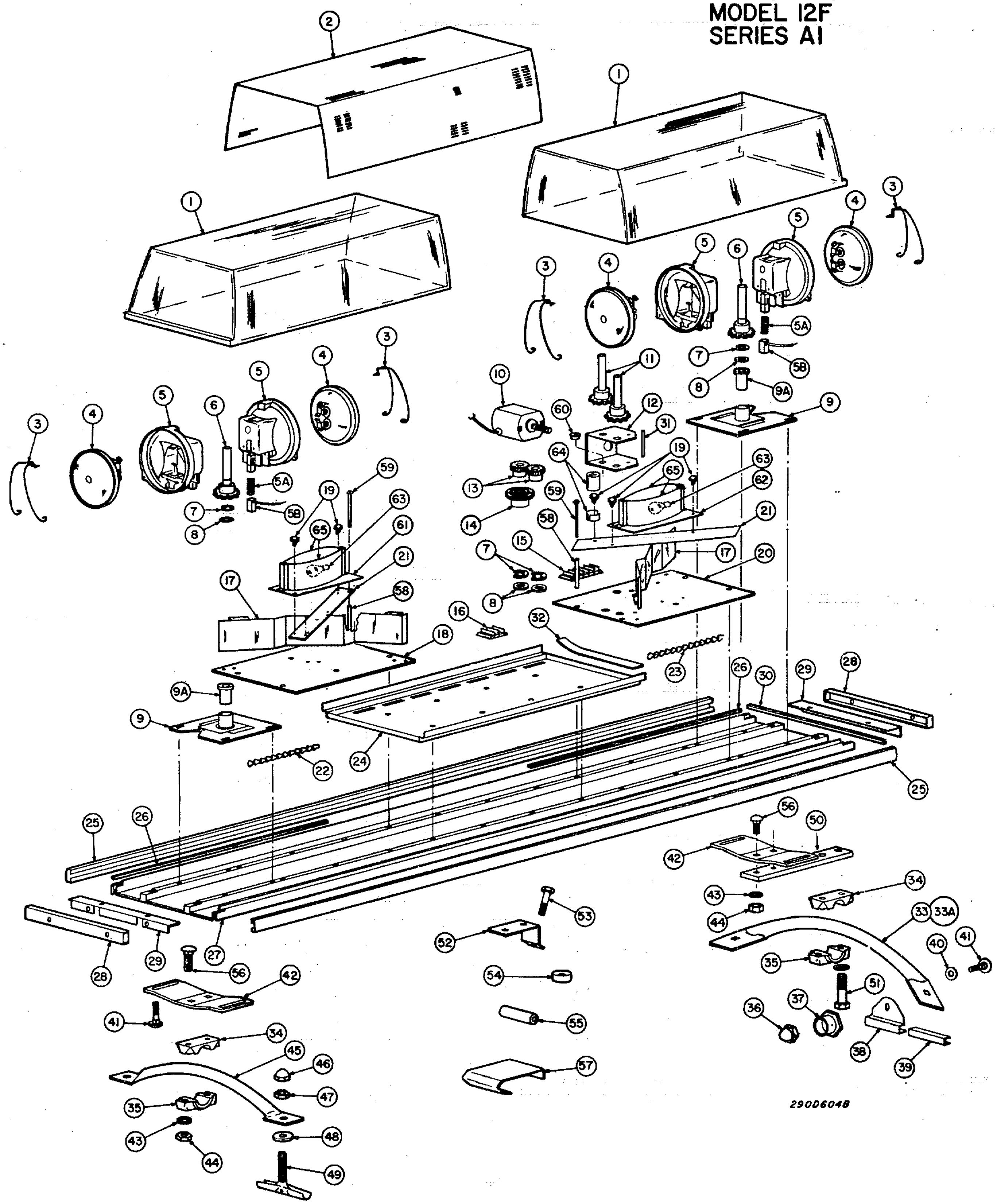
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PARTS INDEX
MODEL 12F
SERIES A1



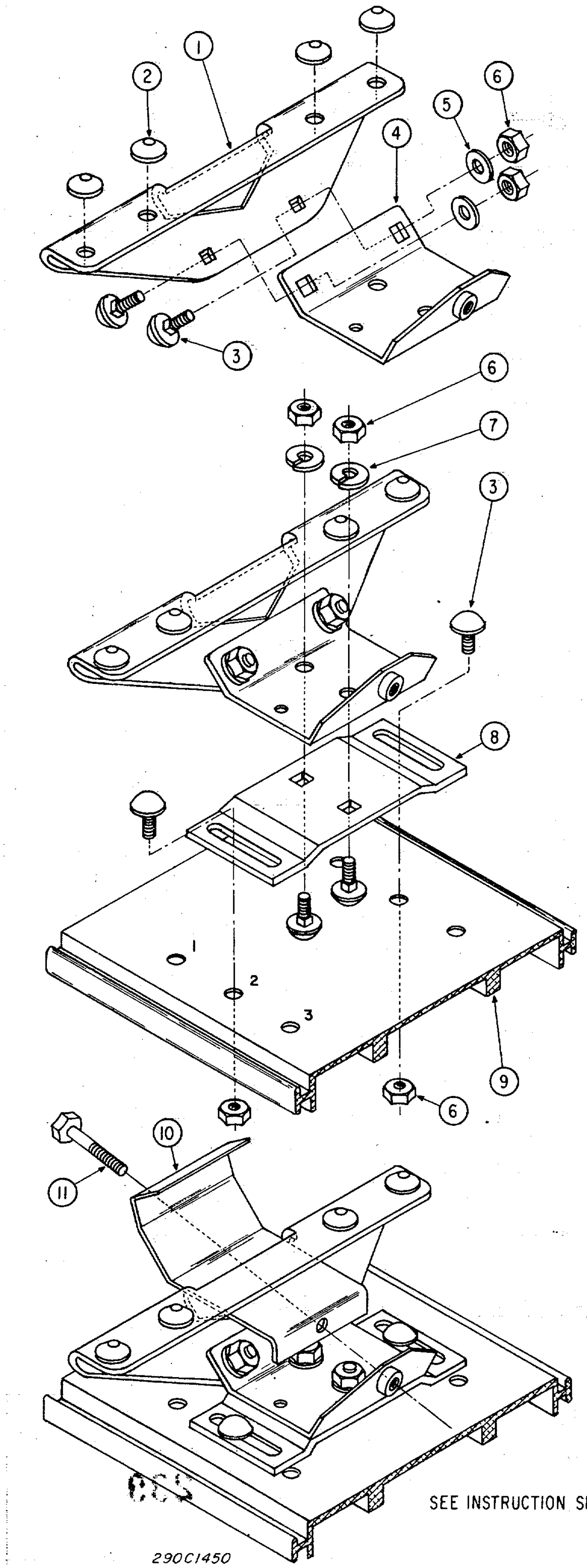
Index No.	Description	Part No.	Qty.
1	Housing, Red Lexan	8470D004-11	2AR
	Housing, Blue Lexan	8470D004-12	
	Housing, Amber Lexan	8470D004-14	
	Housing, Clear Lexan	8470D004-15	
	Housing, Blue With Red Inserts	8470D104-05	
2	Grille	8470D041	1
3	Lamp Clamp Wire	8422B016	4
4	Lamp, 6-Volt Clear (GE#4516)	8107A032	4AR
	Lamp, 12-Volt, 60W Red (GE#4464R)	8107A068	
	Lamp, 12-Volt, 60W Clear (GE#4464)	8107A066	
	Lamp, 12-Volt, 30W Amber (GE#4416A)	8107A059	
	Lamp, 24-Volt, 50W Clear (GE#4505)	8107A027	
	Lamp, 24-Volt, 50W Red (GE#4505R)	8107A060	
	Lamp, 24-Volt, 50W Blue (GE#4505B)	8107A058	
	Lamp, 12-Volt, 30W Blue (GE#4416B)	8107A057	
5	Lamp,Holder Assy. (includes items 5A and 5B)	8422B019	4
5A	Spring	8240A032	4
5B	Brush	8240A031-01	4
6	Sprocket and Shaft Assembly	8470A117	2
7	Retaining Ring	8422A010	4
8	Flat Washer	7072A139	6
9	Mounting Plate Assy. (includes item 9A)	8470A031	2
9A	Bearing	8470A030	2
10	Motor, 6-Volt	8422B111-04	1AR
	Motor, 12-Volt	8422B111-25	
	Motor, 24-Volt	8422B111-26	
11	Drive Shaft and Sprocket	8470A116	2
12	Motor Bracket Assy.	8470C011	1
13	Spur Gear	8470A010	2
14	Worm Gear Clutch Assy.	8422A114	1
15	Terminal Block (4-terminal)	8442A034	1
16	Terminal Block (2-terminal)(used with item 24A)	8442A032	1
17	Mirror and Bracket Assy.	8470B137	2
18	Cover Plate, Mirror (Right Side)	8470C026	1
19	#8 x 1/4 Hex. Hd. Thd. Forming Screw	7011A027-04	17
20	Cover Plate, Mirror and Motor (Left Side)	8470C027	1
21	Support, Mirror	8470B139	2AR
22	Chain	8470A044	1
23	Chain	8470A043	1
24A	Speaker Mounting Plate Assy. (blk. anodized aluminum) (requires use of item 16)	8470C037	1AR
24B	Speaker Mounting Plate (cream--molded plastic (with molded in terminal block)	8470D235	
25	Moulding	8470B006	2
26	Gasket (Mounting Base)	8470A134	4
27	Mounting Base	8470D007	1
28	End Cap	8470B019	2
29	End, Plate Assy.	8470A068	2
30	Gasket (End Plate)	8470A040	2
31	Motor Bracket Spacer	8470A017	1
32	Gasket	8470A146	2
33	Gutter Mounting Bracket (Clamp-on)	8422D048	2AR
33A	Gutter Mounting Bracket, Hi-Bar	8422D048-01	2AR
34	Mounting Bracket Clamp (upper)	8422C060-02	2
35	Mounting Bracket Clamp (lower)	8422C060-01	2
36	Cap Nut	8422A092	4AR
37	Cam	8422A051-01	4AR
38	Gutter Hook	8422A050	4AR
39	Rubber Channel	8422A086	4AR
40	Flat Washer	8422A096	4AR
41	Carriage Bolt (4 used on Gutter mount, 4 secure item 42 to item 27)	8422A189	8AR
42	Adapter Plate	8470B032	2
43	3/8 Split Lockwasher	7074A023	4AR
44	3/8-16 Hex. Nut	7057A032	4AR
45	Permanent Mounting Bracket (Bolt-on)	8422C049	2AR
46	Cap Nut	8422A057	4AR
47	Jam Nut	8422A094	4AR
48	Rubber Mounting Pad	8422A087	4AR
49	Toggle Bolt	8422A032	4AR
50	Extension Bar	8422A194	2AR
51	3/8-16 x 2" Hex. Head Bolt	7000A312-32	4AR
52	Adapter Bracket	8422A245	2AR
53	5/16-18 x 1-3/8" Hex. Head Bolt	7000A319-022	2AR
54	Bumper	8422A249	4AR
55	Rubber Spacer	8422A307	2AR
56	Carriage Bolt	7004A004-32	4
57	Hook Assy. (Ford)	8422A285	2AR
58	Spacer, Mirror	8470A141	2
59	Screw, 8-32 x 3" long	7000A061-48	2
60	Bearing	8422A011	4
61	R.H. Light Assy., 12-Volt, Clear Lens	8470B187-01	1AR
	R.H. Light Assy., 12-Volt, Red Lens	8470B187-02	
	R.H. Light Assy., 12-Volt, Amber Lens	8470B187-03	
	R.H. Light Assy., 12-Volt, Blue Lens	8470B187-04	
	R.H. Light Assy., 24-Volt, Clear Lens	8470B187-05	
	R.H. Light Assy., 24-Volt, Red Lens	8470B187-06	
	R.H. Light Assy., 24-Volt, Amber Lens	8470B187-07	
	R.H. Light Assy., 24-Volt, Blue Lens	8470B187-08	
62	L.H. Light Assy., 12-Volt, Clear Lens	8470B188-01	1AR
	L.H. Light Assy., 12-Volt, Red Lens	8470B188-02	
	L.H. Light Assy., 12-Volt, Amber Lens	8470B188-03	
	L.H. Light Assy., 12-Volt, Blue Lens	8470B188-04	
	L.H. Light Assy., 24-Volt, Clear Lens	8470B188-05	
	L.H. Light Assy., 24-Volt, Red Lens	8470B188-06	
	L.H. Light Assy., 24-Volt, Amber Lens	8470B188-07	
	L.H. Light Assy., 24-Volt, Blue Lens	8470B188-08	
63	Bulb, 12-Volt (GE#1143) 32CP	8107A044	AR
	Bulb, 24-Volt (#311) 42W	8107A045	
64	Flasher, Alternating (12-Volt)	8285A035	1AR
	Flasher, Alternating (24-Volt)	8226A187-05	
65	Lens, Clear	8470B184-01	4AR
	Lens, Red	8470B184-02	
	Lens, Amber	8470B184-03	
	Lens, Blue	8470B184-04	
Not Shown	Switch (flashing lights)	8240A033	1
	Switch (revolving lights)	8470A094	1
	Hole Plug (large)	8422A063	1
	Hole Plug (small)	8470A047	12
	Dome Gasket Conversion Kit, Includes items 26 and 32.	8470A147	
	Bracket (New Style)	8422A285-01	

DO NOT ORDER PARTS BY INDEX NUMBER.
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Blue Island, Illinois 60406

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SIGNAL DIVISION
Federal Signal Corporation

MODEL 12HK*3

HOOK-ON MOUNTING KIT

12HK*3 HOOK-ON MOUNTING KIT
Model 12 Twinsonic ®

PPL 0157 AUGUST 1981
PARTS LIST

Item No.	Description	Part No.	Qty.
1	Mounting Bracket	8542C285	2
2	Rubber Bumper	8542A146	8
3	5/16-18 x 3/4 SS Carriage Bolt	7017A023-12	12
4	Mounting Adapter	8542A300	2
5	5/16-18 Flat SS Washer	7072A031	4
6	5/16-18 SS Hex Nuts	7057A027	12
7	5/16 Split SS Lockwasher	7074A020	4
8	Adapter Plate	8470B032	2
9	Model 12 Twinsonic Light Assembly		
10	Hook	8542B283	2
11	5/16-18 x 1-3/4 * 5/16-18 x 2-1/2 * SS Adjustment Bolt	7002A005-28 7002A005-40	2 2
Not Shown	Instruction Sheet	256A388	1
	* Both are supplied, use length that best fits your vehicle.		

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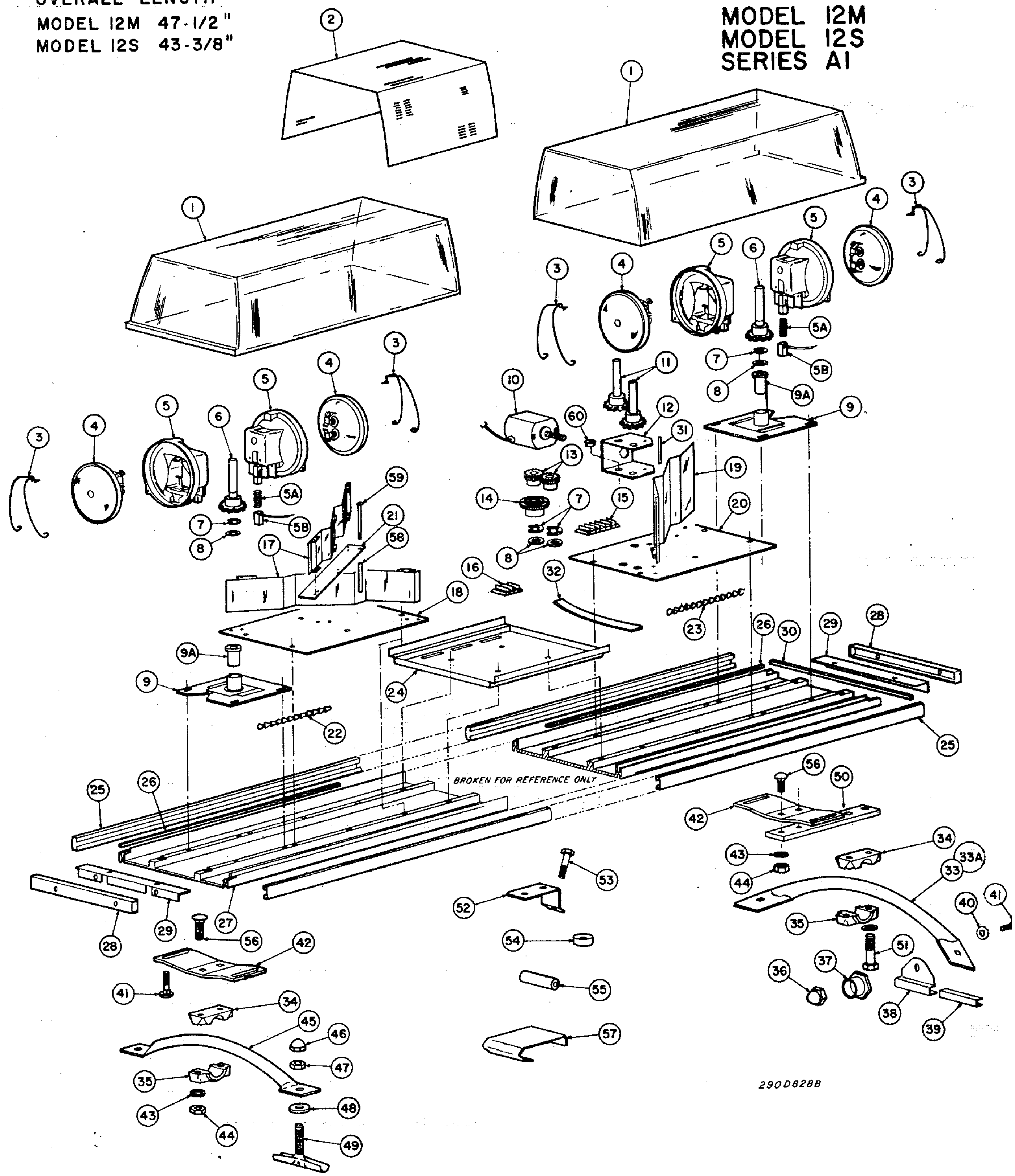
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SEE INSTRUCTION SHEET 256A388 BEFORE ASSEMBLY OF ITEMS 10 AND 11.

SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX
MODEL 12M
MODEL 12S
SERIES A1

OVERALL LENGTH
MODEL 12M 47-1/2"
MODEL 12S 43-3/8"



FEDERAL SIGNAL CORPORATION

PPL 0116
PARTS LIST

TWINSONIC® MODELS 12M and 12S

AUGUST 1981

Index No.	Description	Part No.	Qty.
1	Housing, Red Lexan	8470D004-11	2 AR
	Housing, Blue Lexan	8470D004-12	
	Housing, Amber Lexan	8470D004-14	
	Housing, Clear Lexan	8470D004-15	
	Housing, Blue with Red Inserts	8470D104-05	
2	Grille, 12M	8470C267A	1 AR
	Grille, 12S	8470C163	
3	Lamp Clamp Wire	8422B016	4
4	Lamp, 6-Volt Clear (GE # 4516)	8107A032	4 AR
	Lamp, 12-Volt, 60W Clear (GE # 4464)	8107A066	
	Lamp, 12-Volt, 60W Red (GE # 4464R)	8107A068	
	Lamp, 12-Volt, 30W Amber (GE # 4416A)	8107A059	
	Lamp, 24-Volt, 50W Clear (GE # 4505)	8107A027	
	Lamp, 24-Volt, 50W Red (GE # 4505R)	8107A060	
	Lamp, 24-Volt, 50W Blue (GE # 4505B)	8107A058	
	Lamp, 12-Volt, 60W Blue (GE # 4416B)	8107A057	
5	Lamp Holder Assy. (includes items 5A and 5B)	8422B019	4
5A	Spring	8240A032	4
5B	Brush	8240A031-01	4
6	Sprocket and Shaft Assembly	8470A117	2
7	Retaining Ring	8422A010	4
8	Flat Washer	7072A139	6
9	Mounting Plate Assy. (includes item 9A)	8470A031	2
9A	Bearing	8470A030	2
10	Motor, 6-Volt	8422B111-04	1 AR
	Motor, 12-Volt	8422B111-25	
	Motor, 24-Volt	8422B111-26	
11	Drive Shaft and Sprocket	8470A116	2
12	Motor Bracket Assy.	8470C011	1
13	Spur Gear	8470A010	2
14	Worm Gear Clutch Assy.	8422A114	1
15	Terminal Block (4-terminal)	8422A034	1
16	Terminal Block (2-terminal)	8442A032	1
17	Mirror and Bracket Assy. (Dual Direction Flash)	8470B137	4 AR
18	Cover Plate, Mirror (Right Side)	8470C026	1
19	Mirror Assembly, Front Flash (Left Side Shown)	8470B022	1 AR
	Mirror Assembly, Front Flash (Right Side Not Shown)	8470B023	
20	Cover Plate, Mirror and Motor (Left Side)	8470C027	1
21	Support, Mirror (Dual Direction Flash)	8470B139	2 AR
22	Chain 12M	8470A272A	1 AR
	Chain 12S	8470A162	
23	Chain 12M and 12S	8470A043	1
24	Speaker Mounting Plate Assy. 12M	8470C269A	1 AR
	Speaker Mounting Plate Assy. 12S	8470D166	
25	Moulding 12M	8470B006-02	2 AR
	Moulding 12S	8470B006-01	
26	Gasket (Mounting Base)	8470A134	4
27	Mounting Base 12M	8470D271A	1 AR
	Mounting Base 12S	8470D202	
28	End Cap 12M	8470B157-30	2 AR
	End Cap 12S	8470B019	

Index No.	Description	Part No.	Qty.
29	End Plate Assy.	8470A068	2
30	Gasket (End Plate)	8470A040	2
31	Motor Bracket Spacer	8470A017	1
32	Gasket	8470A146	2
33	Gutter Mounting Bracket (Clamp-on)	8422D048	2 AR
33A	Gutter Mounting Bracket, Hi-Bar	8422D048-01	2 AR
34	Mounting Bracket Clamp (upper)	8422C060-02	2
35	Mounting Bracket Clamp (Lower)	8422C060-01	2
36	Cap Nut	7054A003	4 AR
37	Cam	8422A051-01	4 AR
38	Gutter Hook	8422A050	4 AR
39	Rubber Channel	8422A086	4 AR
40	Flat Washer	7072A141	4 AR
41	Carriage Bolt (4 used on Gutter Mount) (4 secure item 42 to item 27)	8422B189	8 AR
42	Adapter Plate	8470B032	2
43	3/8 Split Lockwasher	7074A023	4 AR
44	3/8-16 Hex. Nut	7057A032	4 AR
45	Permanent Mounting Bracket (Bolt-on)	8422C049	2 AR
46	Cap Nut	8422A057	4 AR
47	Jam Nut	7057A049	4 AR
48	Rubber Mounting Pad	8422A087	4 AR
49	Toggle Bolt	8422A032	4 AR
50	Extension Bar	8422A194	2 AR
51	3/8-16 x 2" Hex. Head Bolt	7000A312-32	4 AR
52	Adapter Bracket	8422A245	2 AR
53	5/16-18 x 1-3/8" Hex. Head Bolt	7000A319-022	2 AR
54	Bumper	8422A249	4 AR
55	Rubber Spacer	8422A307	2 AR
56	Carriage Bolt	7004A004-32	4
57	Hook Assy. (Ford)	8422A285	2 AR
58	Spacer, Mirror	8470A141	2 AR
59	Screw, 8-32 x 3" long	7000A061-48	2 AR
60	Bearing	8422A011	4
Not	Switch	8470A094	1
Shown	Hole Plug (Large)	8422A063	1
	Hole Plug (Small)	8470A047	12
	Dome Gasket Conversion Kit. (includes items 26 and 32)	8470A147	AR

DO NOT ORDER PARTS BY INDEX NUMBER
Give model, voltage, description and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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PARTS INDEX MODEL 14 SERIES A2

Index No.	Description	Part No.	Qty.
1	Dome, Red	8422C002-01	1 AR
	Dome, Blue	8422C002-02	
	Dome, Green	8422C002-03	
	Dome, Amber	8422C002-04	
	Dome, Clear	8422C002-05	
	Split Dome, Red/Amber	8422C160-01	
	Split Dome, Red/Blue	8422C160-02	
	Split Dome , Amber/Blue	8422C160-03	
	Split Dome , Red/Clear	8422C160-04	
	Split Dome , Blue/Clear	8422C160-05	
2	Lamp, Clear 6 Volt (#4516)	8107A032	2 AR
	Lamp, Red 6 Volt (#4516R)	8107A043	
	Lamp, Clear 12Volt (#4416)	8107A033	
	Lamp, Red 12 Volt (#4416R)	8107A042	
	Lamp, Blue 12 Volt (#4416B)	8107A057	
	Lamp, Amber 12 Volt (#4416A)	8107A059	
	Lamp, Green 12 Volt (#4416G)	8107A033-0G	
	Lamp, Blue Halogen 12 Volt (# H7600B) Model 14Q	8107A116	
	Lamp, Clear Halogen 12 Volt (#76600) Model 14Q	8107A103	
	Lamp, Clear 24 Volt (#4505)	8107A027	
	Lamp, Red 24 Volt (#4505R)	8107A060	
3	Lamp Holder Assembly	8422B019	2
3A	Spring (part of item 3)	8240A032	2
3B	Brush (part of item 3)	8240A031-01	2
4	8-32 x 5/8 Hex. Hd. Taptite Screw	7011A043-10	2
5	Lamp Clamp Wire	8422B016	2
6	Shaft	8422A321	1
7	Bearing	8422A011	2
8	Retaining Ring	8422A010	2
9	Worm Gear and Clutch Assy.	8422A114	1
10	Washer	7072A139A	1
11	Motor Bracket and Collector Ring Assembly	* 8422A323	1
12	Motor, 6 Volt	8422B111-04	1 AR
	Motor, 12 Volt	8422B111-25	
	Motor, 24 Volt	8422B111-06	
13	Gear Box Cover	8422A358	1
14	Grommet	8108A018	1
15	Gasket	8422A020	1
16	Housing	8422C003	1
17	Retaining Band Assy.		1 AR
	Series A2 6Volt	8422C025-01	
	Series A2 12 Volt	8422C025-02	
	Series A2 24 Volt	8422C025-03	
	MS51317 14 Volt	8422C025-13	
	MS51317 28 Volt	8422C025-14	
	Series A3 12 Volt	8422C025-21	
Not Shown			
	Toggle Bolt	8422A032	3
	Switch	8240A033	1
	Mounting Kit	8422A029-12	1
	Model 14M Base with Magnet	8422C099	1 AR
	Magnets for 14M	8440A018	3 AR
	Coiled Cord & Plug	8440B323	1 AR
	Straight Cord & Plug for ciagrette Lighter	8440B015	1 AR

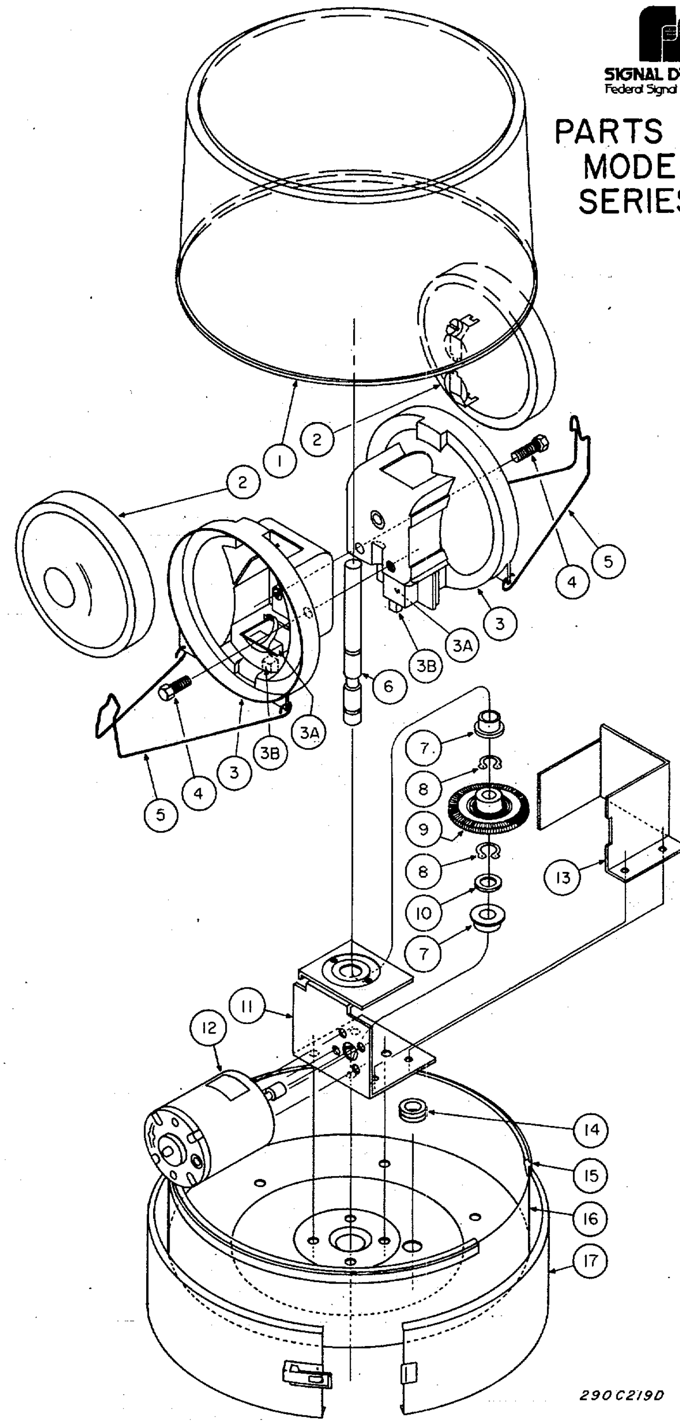
* When ordering bracket (item 11) also order two bearings (item 7, 8422A011).

DO NOT ORDER PARTS BY INDEX NUMBER.
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Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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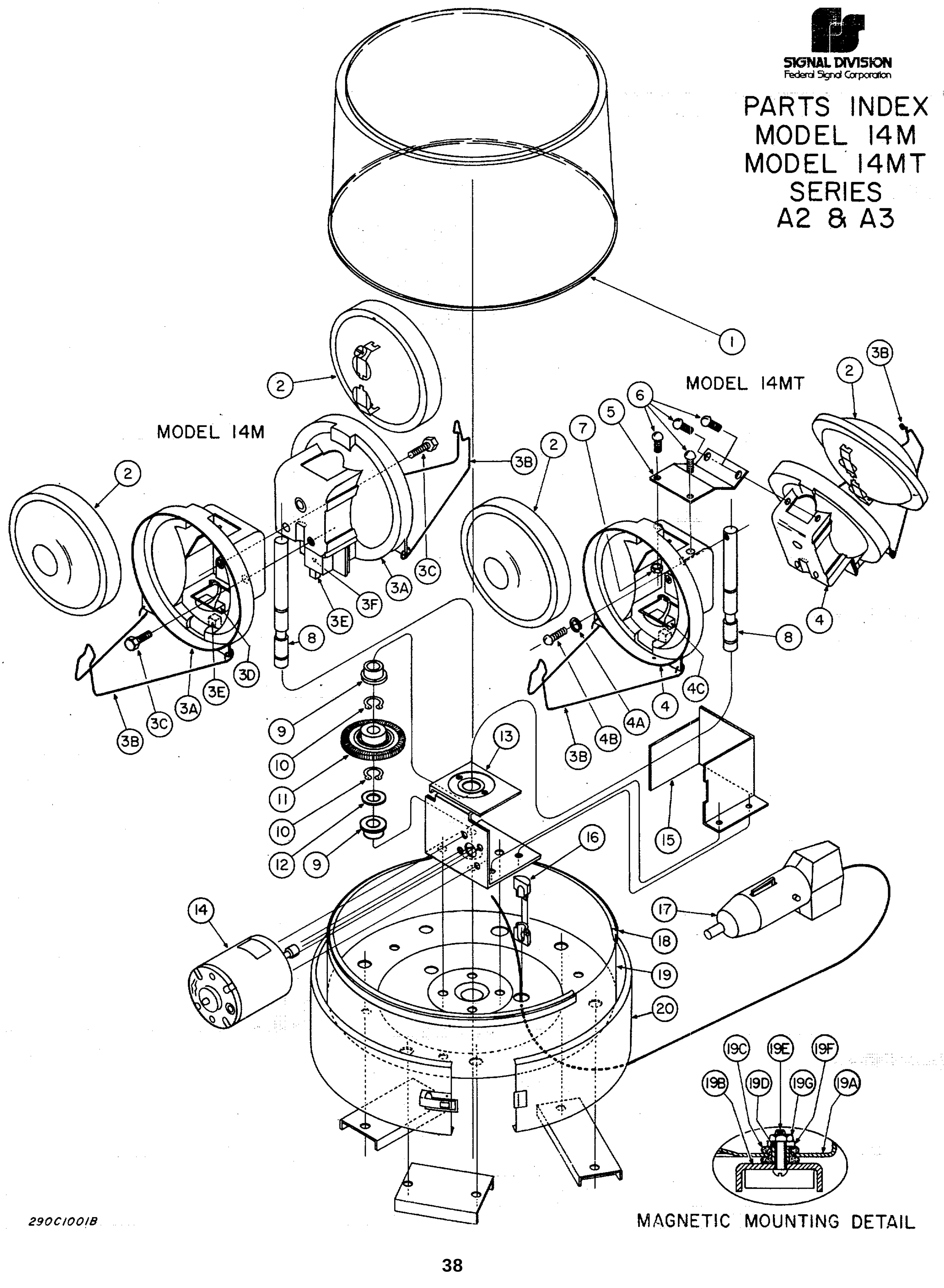
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PARTS INDEX MODEL 14M MODEL 14MT SERIES A2 & A3



Item No.	Description	Part No.	Qty.
1	Dome, Red	8422C002-01	1 AR
	Dome, Blue	8422C002-02	
	Dome, Green	8422C002-03	
	Dome, Amber	8422C002-04	
	Dome, Clear	8422C002-05	
	Split Dome, Red and Amber	8422C160-01	
	Split Dome, Red and Blue	8422C160-02	
	Split Dome, Amber and Blue	8422C160-03	
	Split Dome, Red and Clear	8422C160-04	
	Split Dome, Blue and Clear	8422C160-05	
2	Lamp, Clear 6V # 4516	8107A032	2 AR
	Lamp, Red 6V # 4516R	8107A043	
	Lamp, Clear 12V # 4416	8107A033	
	Lamp, Red 12V # 4416R	8107A042	
	Lamp, Blue 12V # 4416B	8107A057	
	Lamp, Amber 12V # 4416A	8107A059	
	Lamp, Green 12V # 4416G	8107A033-OG	
	Lamp, Clear 24V # 4505	8107A027	
	Lamp, Red 24V # 4505R	8107A060	
	Lamp, Blue 12V # H7600B	8107A116	
3	Lamp Holder Assembly, Model 14M	8422B210	1
	the following are parts of item 3		
3A	Lamp Holder	8422B019	2
3B	Lamp Clamp Wire	8422B016	2
3C	8-32 x 5/8 Screw, Taptite, Hex Hd.	7011A043-10	2
3D	Brush and Holder Assembly	8422A005	2
3E	Brush part of items 3D and 4C	8240A031-01	AR
3F	Spring part of items 3D and 4C	8240A032	AR
4	Lamp HolderModel 14MT	8422A104	2
4A	8-32 Lockwasher, Spring .050 in. thk.	7074A007	1
4B	8-32 x 5/8 Screw, Hex Hd.	7000A305-10	1
4C	Brush Holder Assembly	8242A006	1
5	Bracket	8422A122	1
6	8-32 x 5/8 Screw, Mach. , Rd. Hd.	7000A061-06	4
7	8-32 Nut, Keps, Hex.	7058A022	4
8	Shaft, Model M Series A2	8422A321	1 AR
	Shaft, Model MT Series A2	8422A105	
	Shaft, Model M Series A3	8422A321	
	Shaft, Model MT Series A3	8422A324	
9	Bearing	8422A011	2
10	Retaining Ring	8422A010	2
11	Worm Gear and Clutch Assembly		
	Used with item 14A -B -C Series A2	8422A114	1 AR
	Used with item 14D Series A3	8422A321	
12	Washer, Flat	7072A139A	1
13	Motor Bracket and Collector Ring Assembly	*8422A323A	1
14A	Motor 6V Series A2	8422B111-04	1 AR
14B	Motor 12V Series A2	8422B111-25	
14C	Motor 24V Series A2	8422B111-26	
14D	Motor 12V Series A3	8422B111-25	
15	Gear Box Cover	8422A358	1
16	Strain Relief Plug SR 13-1	8444A023	1
17	Plug and Cable Assembly 6V	8440B024	1 AR
	Plug and Cable Assembly 12V	8440B015	
	Plug and Cable Assembly 24V	8440B015	
18	Gasket	8422A020	1
19	Housing and Magnet Assembly	8422C340-01	1
	the following are parts of item 19		
19A	Housing	8422C339-01	1
19B	Magnet Assembly	8422A274-01	3
19C	Grommet	8108A014	6
19D	Bushing	8440A271	6
19E	8-32 x 5/8 Screw, Mach. , Rd. Hd.	7000A061-10	6
19 F	Washer, Flat	7072A009	6
20	Retaining Band Assembly		1 AR
	14M * 06 Series A2	8422C025-04	
	14M * 12 Series A2	8422C025=05	
	14M * 24	8422C025-06	
	14M * 12 Series A3	8422C025-22	
	14MT * 06 Series A2	8422C025-07	
	14MT * 12 Series A2	8422C025-08	
	14MT * 24	8422C025-09	
	14MT * 12 Series A3	8422C025-23	

* When ordering motor bracket and collector reing assembly (item 13) order two bearings (item 9, part number 8422A011) .

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, series, voltage, description, and part number.

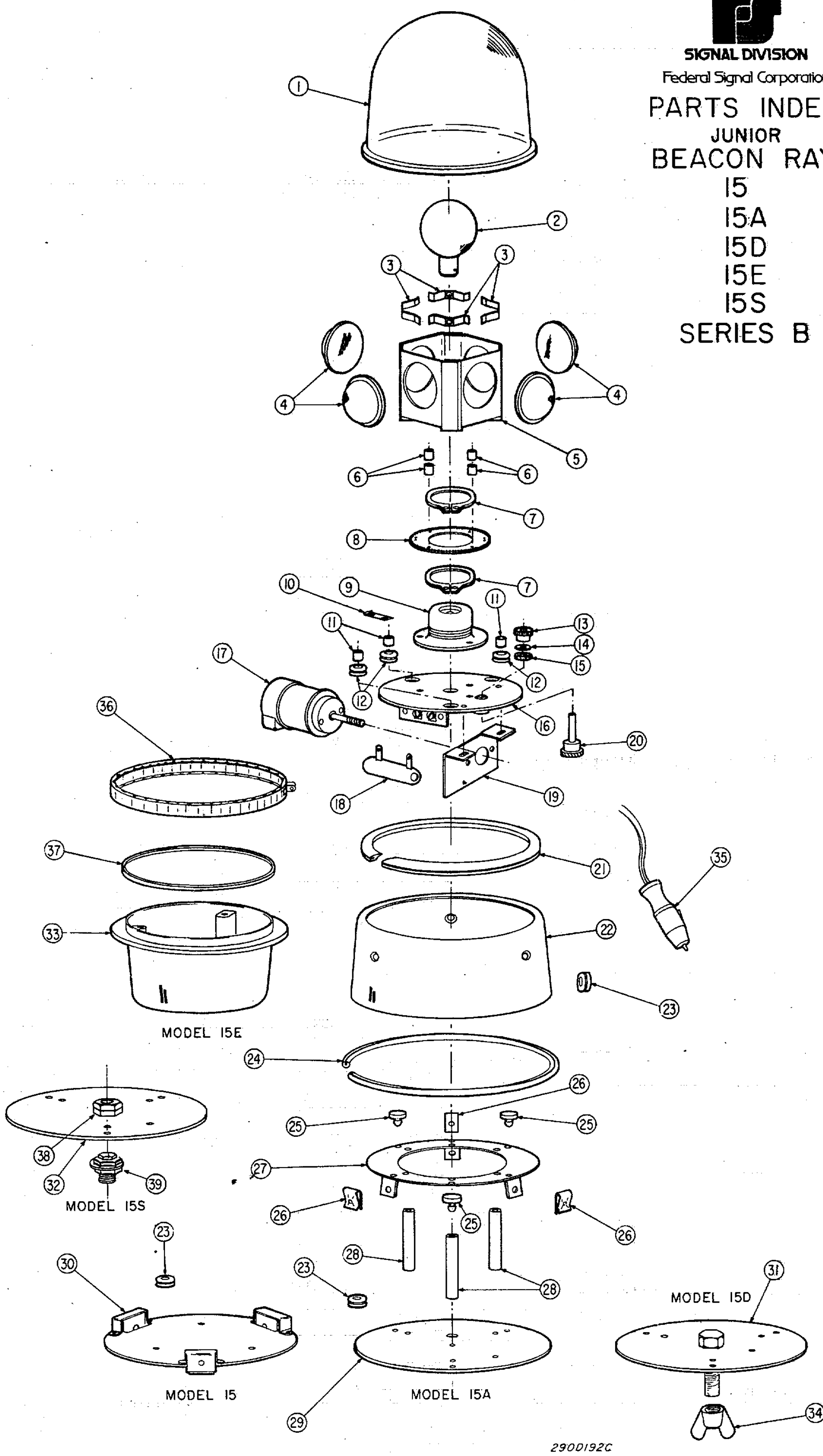
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PARTS INDEX
JUNIOR BEACON RAY®
15 15A 15D 15E 15S SERIES B



JUNIOR BEACON RAY®

Index No.	Description	Part No.	MAGNETIC MODEL 15 ← VOLTAGE →						PERMANENT MODEL 15A ← VOLTAGE →						DEMOUNTABLE MODEL 15D ← VOLTAGE →						CAST BASE MODEL 15E ← VOLTAGE →						ROOF MOUNT MODEL 15S ← VOLTAGE →					
			12	24	32	36	48	72	12	24	32	36	48	72	12	24	32	36	48	72	12	24	32	36	48	72	12	24	32	36	48	72
1	Lexan Dome, Red	8441C192-01	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR
	Lexan Dome, Blue	8441C192-02	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR
	Lexan Dome, Green	8441C192-03	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR
	Lexan Dome, Amber	8441C192-04	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR
	Lexan Dome, Clear	8441C192-05	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR
2	Lamp, 12-volt GE1019	8441A033	o						o						o						o						o					
	Lamp, 24-volt GE311	8107A045		o						o						o						o						o				
	Lamp, 32-volt GE1238	8441A057			o	o					o	o					o	o					o	o					o	o		
	Lamp, 48-volt	8107A098					o	o					o	o					o	o					o	o					o	o
3	Lens Clip	8441A009	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
4	Aspheric Lens	8441A002	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
5	Lens Holder Assembly	8441B038	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
6	Lens Holder Spacer	8441A008-02	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
7	Retaining Ring	8440A031	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
8	Gear	8440A014	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
9	Socket Holder Assembly	8441A060	o	o					o	o					o	o					o	o					o	o				
	Socket Holder Assembly	8441A061			o	o	o	o			o	o	o	o			o	o	o	o			o	o	o	o			o	o	o	o
10	Coil Retainer	8435A014								o						o						o										
11	Spacer	8441A104	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o			o	o	o	o	o	o	o	o	o	o
12	Grommet	8441A103	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
13	Pinion	8441A027	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
14	#10 Flat Washer	7072A021																			o	o					o	o	o	o	o	o
15	Oil Retaining Washer	8441A018	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
16	Mounting Plate with Bearing and Terminal	8441B045	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
17	Motor	8540B055	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
18	Resistor, 4 ohm, 50W	8440A190			o	o					o	o					o	o					o	o					o	o		
	Resistor, 20 ohm, 25W	8441A198					o						o						o						o						o	
	Resistor, 25 ohm, 50W	8441A199						o						o						o						o						o
	Resistor, 25 ohm, 50W	8441A200						o						o						o						o						o
	Resistor, 50 ohm, 25W	8441A189		o						o						o						o						o				
19	Motor Bracket	8441A194	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
20	Pinion & Shaft Assembly	8441A195	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
21	Dome Gasket	8441A040	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o							o	o	o	o	o	o
22	Skirt, Chrome	8441C003-01							o	o	o	o	o	o	o	o	o	o	o	o												
	Skirt, Chrome	8441C003-02	o	o	o	o	o	o																			o	o	o	o	o	o
23	Grommet	8108A014	o	o	o	o	o	o	o	o	o	o	o	o													o	o	o	o	o	o
24	Gasket	8441A041	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o							o	o	o	o	o	o
25	Bumper	8108A016	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o							o	o	o	o	o	o
26	Tinnerman Speed Nut	8240A054	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o							o	o	o	o	o	o
27	Mounting Ring Assembly	8441B030	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o							o	o	o	o	o	o
28	Spacer Post	8441A023	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o							o	o	o	o	o	o
29	Base Plate Assembly	8441B044							o	o	o	o	o	o																		
30	Base Plate Assembly	8441B025	o	o	o	o	o	o																								
31	Base Plate Assembly	8441B071													o	o	o	o	o	o												
32	Base Plate Assembly	8441B092																									o	o	o	o	o	o
33	Housing	8441C102																			o	o	o	o	o	o						
34	Wing Nut	7064A004													o	o	o	o	o	o												
35	Plug & Cable Assembly	8440B015	o																													
36	Retaining Band	8441A106																			o	o	o	o	o	o						
37	Gasket	8441B193																			o	o	o	o	o	o						
38	Light Plug Assembly	8441A086																									o	o	o	o	o	o
39	Light Socket Well Assembly	8441A085																									o	o	o	o	o	o
Not Shown	Motor Replacement Kit (for Series "A").	8441A186	o						o						o						o						o					

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.

AR indicates used as required
o indicates used on.

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PARTS INDEX
MODEL 16
SERIES A1

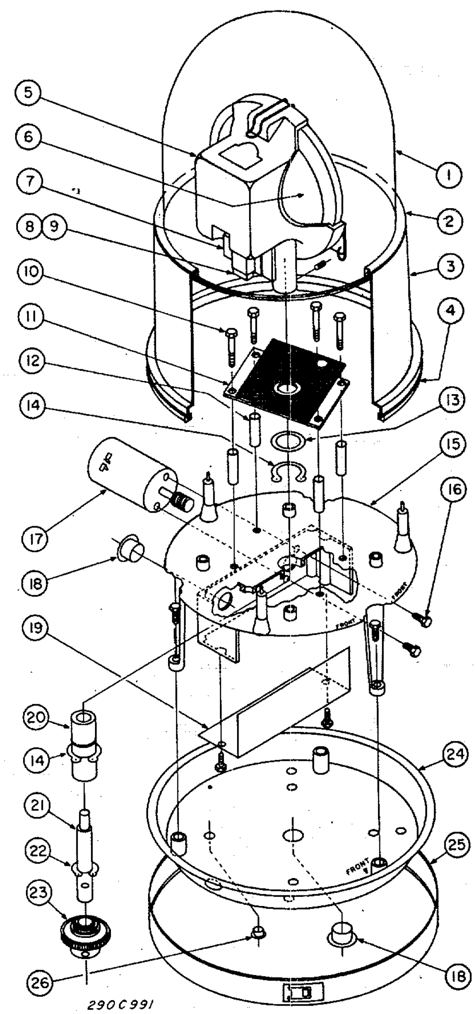
Item No.	Description	Part No.	Qty.
1	Dome, Lexan, Clear	8441C192-05	1AR
	Dome, Lexan, Amber	8441C192-04	
	Dome, Lexan, Red	8441C192-01	
	Dome, Lexan, Blue	8441C192-02	
	Dome, Lexan, Green	8441C192-03	
2	Gasket, Dome	8441A040	1
3	Housing Assy. 12V	8541C011A-01	1AR
	Housing Assy. 24V	8541C011A-02	
4	Gasket	8540A049A	1
5	Lamp Holder Assy.	8541B010A	1
6	Lamp DM Halogen 12V	8107A094A	1AR
	Lamp DM30 GE4416 12V	8107A033	
	Lamp DM60 GE4464 12V	8107A066	
	Lamp DM50 GE4505 24V	8107A027	
	Lamp GE Halogen H7616 12V	8107A103A	
7	Brush and Holder Assy. (part of item 5)	8422A005	AR
8	Brush (part of item 7)	8240A031-01	AR
9	Spring (part of item 7)	8240A032	AR
10	6-32x1-3/8 Hex. Hd. Mch. Scr.	7011A028-22	4
11	Collector Ring Assy.	8541A005A	1
12	Spacer	8541A008A-02	4
13	Washer, Flat Steel	7072A139	1
14	Ring, Retaining	8540A053	2
15	Base, Mounting	8541C012B	1
16	6-32x5/16 Hex. Hd. Mch. Scr.	7006A017-05	2
17	Motor 12V	8540B055A	1AR
	Motor 24V	8540B055A-02	
18	Hole Plug	8422A063	3
19	Cover, Gear Box	8540A030-01	1
20	Bearing	8541A004	1
21	Shaft, Lamp	8541A003	1
22	Ring, Retaining	8422A010	1
23	Worm Gear & Clutch Assy.	8459A017	1
24	Base Plate	8540C006	1AR
	Base Plate (model 16DK)	8541C014	
25	Retaining Band Assy.	8540C048A	1
26	Hole Plug	8540A909	4
Not Shown	FLUSH MOUNTING		
	8-32Keps Nut	7058A003	1
	Washer	7072A009	1
	Grommet, Rubber	8108A005	2
	Cable Clamp	8240A072	1
	Gasket	8422A042	1
	8-32x3/8 Rd. Hd. Mch. Scr.	7000A063-06	3
	Spacer, Rubber	8108A009	4
	Ground Clip	8240A023	1
	Switch	8240A033	1
	MAGNETIC MOUNTING (16DK)		
	Magnet Assy	8422A274-01	3
	8-32x5/8 Rd. Hd. Mch. Scr.	7000A061-10	6
	Bushing	8440A271	6
	Grommet, Rubber	8108A014	6
	Washer, Flat	7072A009	6
	6-32 Hex Nut, Keps	7058A002	6
	Plug & Cable Assy	8440B323	1

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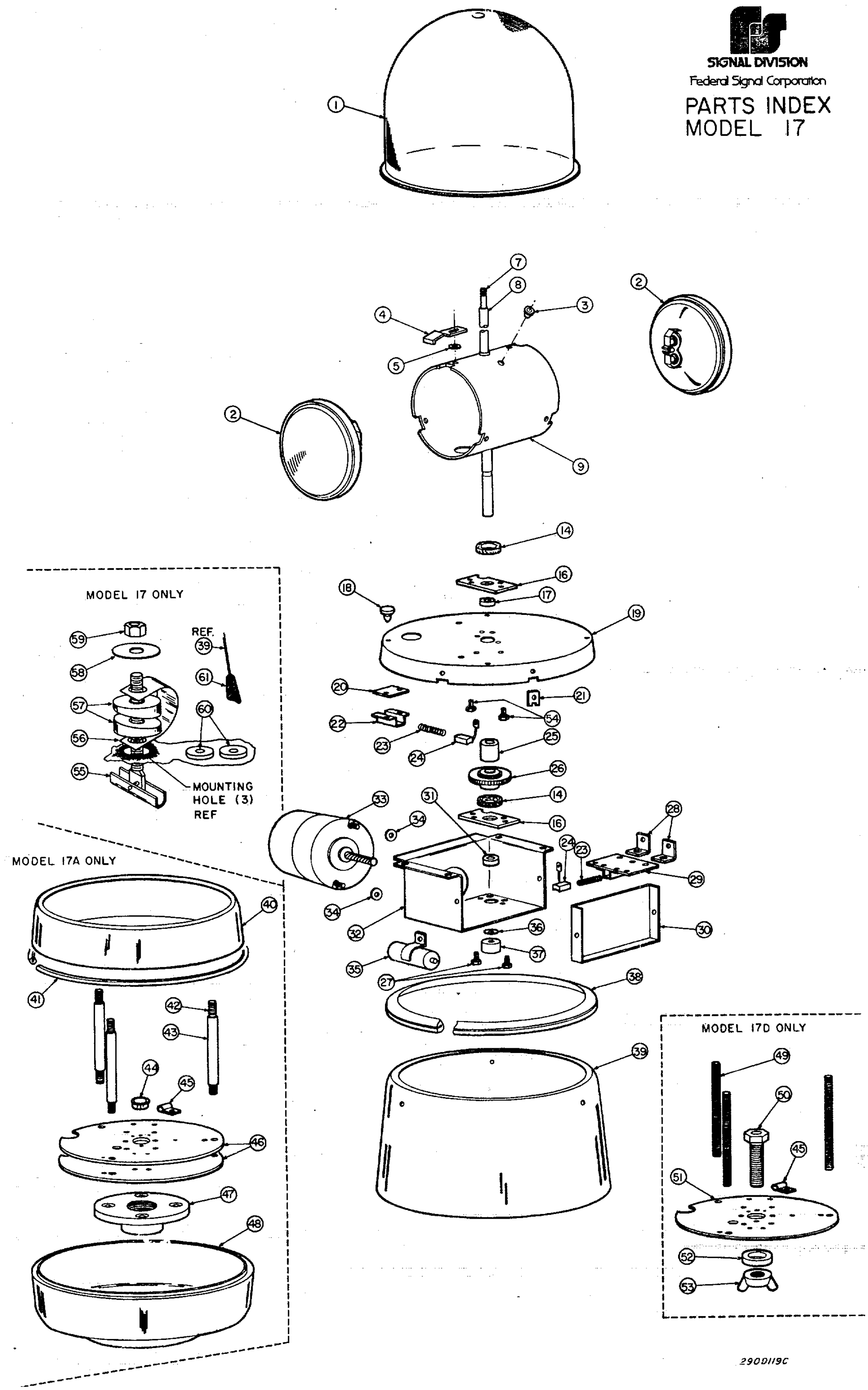
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PARTS INDEX
MODEL 17



STANDARD STRAT-O-RAY LIGHT
Models 17, 17A, and 17D

Index No.	Description	Part No.	Qty.
1	Plastic Dome, Red	8449C005-11	1 AR
	Plastic Dome, Blue	8449C005-12	
	Plastic Dome, Amber	8449C005-14	
	Plastic Dome, Clear	8449C005-15	
	Split Dome, Blue and Clear	8449C048-01	
	Split Dome, Amber and Red	8449C048-02	
	Split Dome, Red and Blue	8449C048-03	
	Split Dome Amber and Blue	8449C048-04	
	Split Dome, Red and Clear	8449C048-05	
	Split Dome, Amber and Clear	8449C048-06	
2	Lamp, 6V, Clear GE 4516	8107A032	2 AR
	Lamp, 12V, Clear GE 4416	8107A033	
	Lamp, 12V, Red GE 4416R	8107A042	
	Lamp, 24V, Clear GE 4505	8107A027	
	Lamp, 12V, Blue GE H7600B	8107A116	
3	Grommet	8007A204	2
4	Clamp, Lamp	8240A016	6
5	Washer, Flat	8240A614	6
7	Contact Rod	8240A018	1
8	Tube, Insulator	8240A020	1
9	Lamp Holder Assembly	8240B004A	1
14	Washer, Oil Retaining	7072A123	2
16	Holder, Bearing	8240A009	2
17	Bearing, Oilite, Upper	8240A034-01	1
18	Bumper, Grommet Type (for plastic dome)	8108A016	4
19	Plate, Base	8240C005	1
20	Spacer, Brush Holder	8240A030	1
21	Nut, Tinnerman Speed	7060A000	9
22	Tube, Brush	8240A029	1
23	Spring, Brush	8240A032	2
24	Brush Assembly	8240A031	2
25	Slip Ring, Upper	8240A014	1
26	Worm Gear and Clutch Assembly	8422A114	1
27	8-32 x 1/4 Screw, Taptite	7011A061-04	2
28	Terminal	8240A021	1
29	Brush Holder Assembly	8240A191	1
30	Gear Box Cover	8240B010	1
31	Bearing, Oilite, Lower	8240A034-02	1
32	Gear Box	8240C008	1
33	Motor, 6V	8240A420-06	1 AR
	Motor, 12V	8240A420-12	
	Motor, 24V	8240A420-24	
34	Spacer, Motor	7072A131A	2
35	Filter, 24V	8226A186	1 AR
36	Washer, Insulating	7072A124A	2
37	Slip Ring, Lower	8240A019	1
38	Gasket, Dome	8240A004	1
39	Skirt, 5 inch (standard)	8240C243-02	1 AR
	Skirt, 6-1/2 inch	8240C250-01	
	Skirt, 7-1/2 inch	8240C258-01	
	Skirt, 11 inch	8240D587-01	
40	Upper Cover, Chrome	8240C247-01	1
41	Gasket	8240A107	1
42	Stud	7009A007-64	3
43	Spacer	8240A104	3
44	Bushing	8240A231	1
45	Clamp, Wire	8240A072	1
46	Plate, Base	8240B139-02	2
47	Flange	8240A170	1
48	Lower Cover, Chrome	8240C106	1
49	Stud	7009A007-88	3
50	Stud, Mounting	8240A137	1
51	Plate, Base	8240B139-01	1
52	Washer, Rubber	7072A125A	1
53	Nut, Wing	7064A004A	1
54	8-32 x 3/8 Screw, Taptite	7011A056-06	2
55	1/4-20 Bolt, Toggle	8240A041	3
56	Ground Strip	8240A023	1
57	Washers, Tapered Rubber	8240A022	6
58	Washer, Steel	7072A026	3
59	1/4-20 Nut, Hex Head	7059A018	3
60	Grommets	8108A005	2
61	Gasket (for bottom of skirt after trimming to mounting surface contour).	8240A007-01	1

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description, and part number.

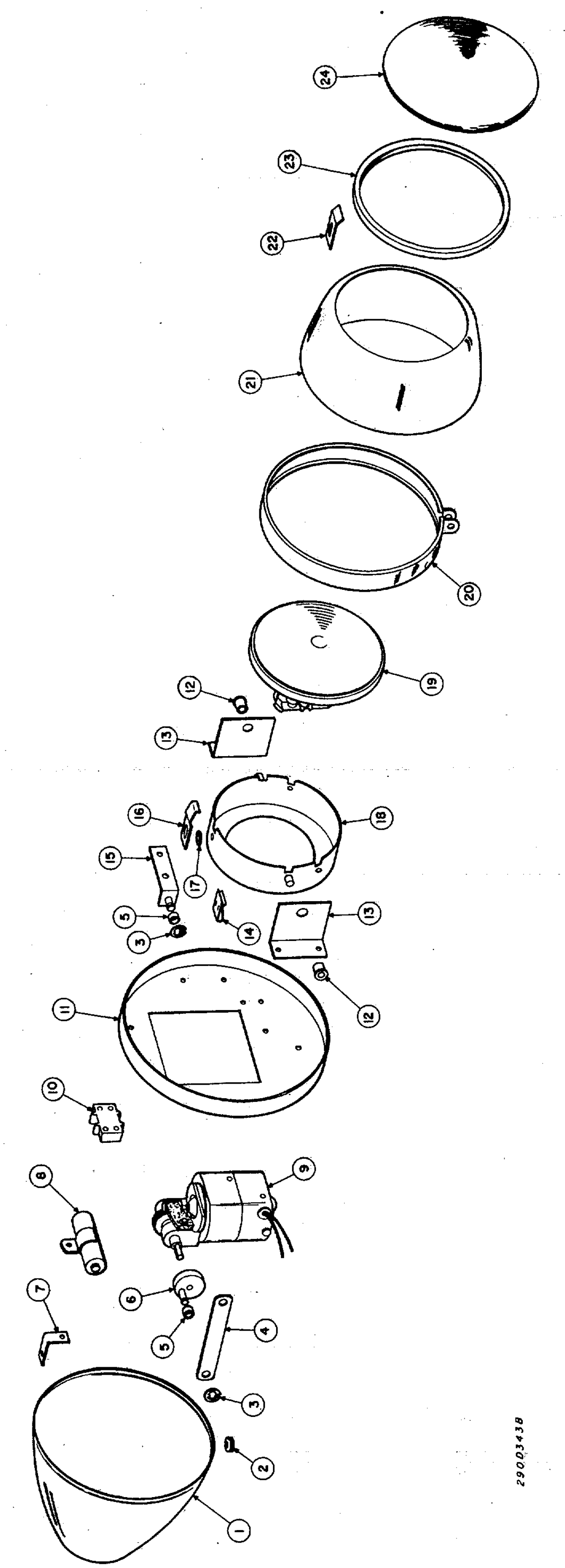
Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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Signal Division
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SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX MODEL 18



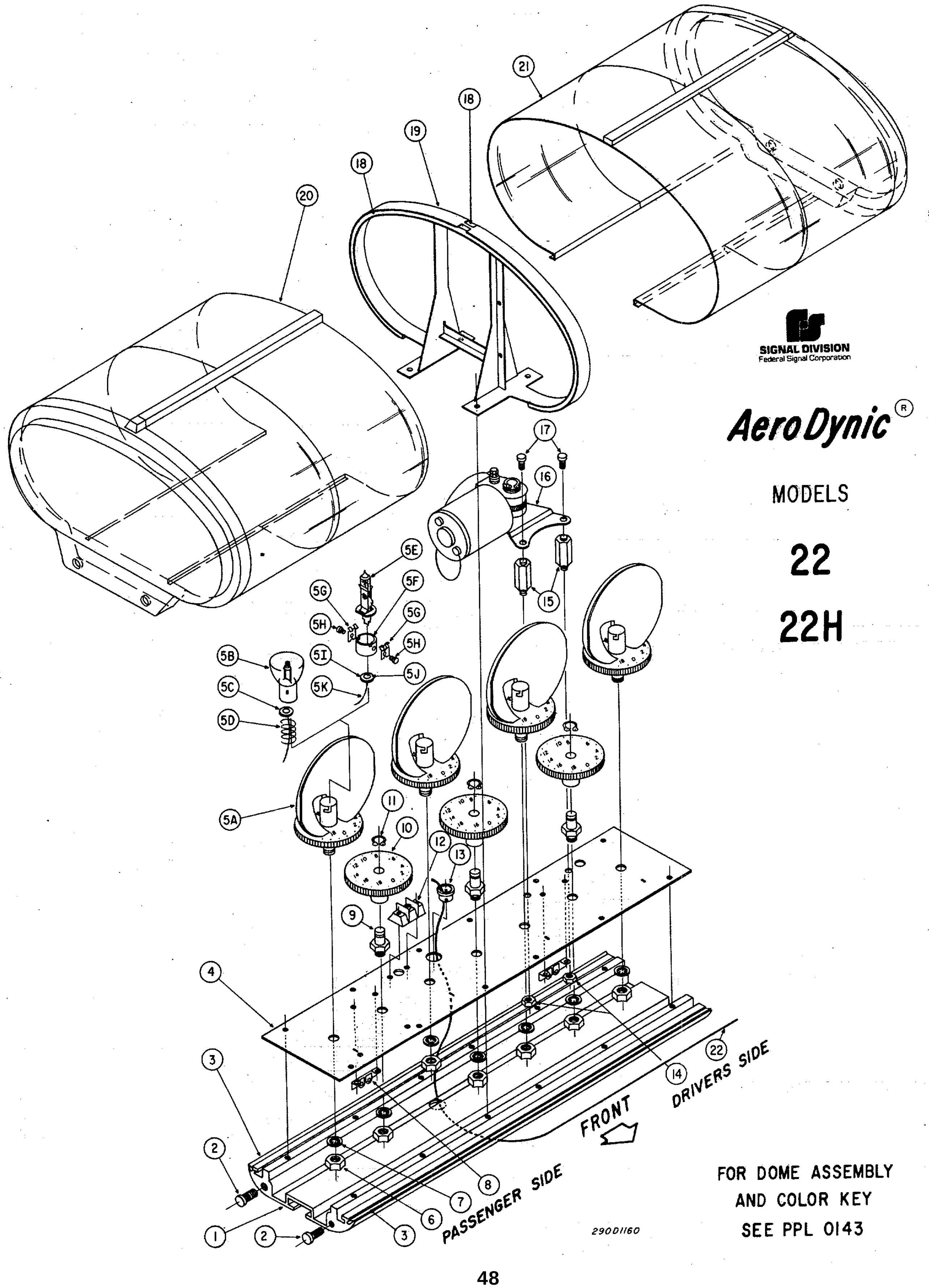
Index No.	Description	Part No.	Qty.
1	Cover, Rear	H7615	1
2	Grommet	H7204	1
3	Ring, Retaining	8253A118	2
4	Link	8253A111	1
5	Bearing	8253A116	2
6	Cam Assembly	8253A113	1
7	Clip, Angle	8253A103	1
8	Filter	8226A186	1 AR
9	Motor, 12V	*	
10	Terminal Block	8253A119	1
11	Plate, Base	8253B101	1
12	Bearing	8253A115	2
13	Plate, Hinge	8253A107	2
14	Nut, Speed	8240A054	3
15	Lamp Link Bracket Assembly	8253A114	1
16	Clamp, Lamp	8240A016	3
17	Washer, Flat	8240A614	3
18	Lamp Holder Assembly	8253A112	1
19	Bulb, 12V	8107A026	1
20	Ring, Retaining	H7616-0A	1
21	Cover, Front	H7613	1
22	Clip, Lens	8253A104	3
23	Gasket	8176B002	1
24	Lens, Red	H7843-01	1 AR
	Lens, Blue	H7843-02	
	Lens, Clear	H7843-03	
Not Shown			
	Base, Roof Mounting	H7844-0D2	AR
	Base, Fender Mounting	H7844-0E1	AR
	Adapter, Mounting	H7873-0E	AR
	Mechanism Assembly	8253D125-02	
	(consists of items 3,4,5,6, and 9 thru 19)		
	* unavailable at present time		

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description, and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

Federal Signal Corporation
Signal Division
136 th and Western Avenue
Blue Island, Illinois 60406

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SIGNAL DIVISION
Federal Signal Corporation

AeroDynic®

MODELS

22

22H

FOR DOME ASSEMBLY
AND COLOR KEY
SEE PPL 0143

AeroDynic®

MODELS 22 and 22H

FOR DOME ASSEMBLY (and Color Key) SEE PPL 0143

PPL 0142
PARTS LIST

AUGUST 1981

Item No.	Description	Part No.	MODEL 22	MODEL 22H
1	Extrusion, Machined	8542D004-13	1	1
2	1/4-20 x 5/8 Screw, Trs. Hd.	7000A457-10	4	4
3	Gasket, Dome	8542A006	2	2
4	Plate, Mounting	8542D172	1	1
5	Socket, Reflector, & Lamp Assembly	8542B111	4	0
	Socket, Reflector, & Lamp Assembly	8542B110	0	4
	Parts included in Item 5			
5A	Socket & Reflector Assembly	8542B022	4	0
	Socket & Reflector Assembly	8542B113	0	4
5B	Lamp, GE 1195	8440A108	4	0
5C	Lead Wire	8444A017-03	4	0
5D	Spring	8444A017-02	4	0
5E	Lamp, Halogen (H)	8440A265	0	4
5F	Bushing, Adapter	8440A250	0	4
5G	Retainer, Spring	8440A258	0	8
5H	8-32 x 5/8 Screw, Pan Hd.	7011A104-03	0	8
5I	Insulator	8440A262	0	4
5J	Eyelet	8440A263	0	4
5K	Lead Wire	310A377	0	4
6	3/8-24 Nut, Hex	7065A018A	7	7
7	Lockwasher	7075A032	7	7
8	Terminal Strip	8542A055	2	2
9	Hub, Idler	8542A025 B	3	3
10	Gear, Spur	8542B021	3	3
11	Ring, Retainer	8422A010	3	3
12	Terminal Strip (1 terminal)	8542A171	1	1
13	Bushing, Snap	8470A106	2	2
14	1/4-20 Nut, Ext. Keps	7058A005	2	2
15	Spacer	8542A071	2	2
16	Motor & Motor Bracket Assembly	8542C070	1	1
	Motor (separately)	8422B111-25	AR	AR
17	10-32 x 3/8 Screw. Trs. Hd. Ext. Sems	7006A053-06	2	2
18	Gasket, Bulkhead	8542A027	2	2
19	Bulkhead, Center	8542D011	1	1
	SEE PPL 0143 FOR DOME ASSY. & COLOR KEY			
20	Housing Assembly, Passenger Side Dome	8542D170-XX	1	1
21	Housing Assembly, Drivers Side Dome	8542D170-XX	1	1
22	Cable, Power (2 conductor)	310A399	1	1
Not Shown	Gasket, Extrusion	8542A235	2	2
	Gasket, End Cap, Dome Assy.	8542 A234	2	2

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, description, and part number.
Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

Federal Signal Corporation
Signal Division
136th and Western Avenue
Blue Island, Illinois 60406

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AeroDynic® DOME ASSEMBLIES
MODELS 22, & 22H
STANDARD COLOR KEYS

PART NUMBER: 8542 D170-XX

COLOR KEY	FRONT (top row / bottom row)	DRIVERS SIDE	PASSENGER SIDE
1	R→ R R R R / R R R R ←R	01	01
2	B→ B B B B / B B B B ←B	02	02
3	A→ A A A A / A A A A ←A	03	03
4	R→ R R R R / A A A A ←R	04	05
5	B→ B C C B / B C C B ←B	06	06
6	R→ R C C R / R C C R ←R	07	07
7	R→ B R R B / B R R B ←R	08	08
8	B→ R B B R / R B B R ←B	09	09
9	R→ R R A A / R R A A ←A	01	03
10	R→ R R B B / R R B B ←B	01	02
11	B→ B R R B / B R R B ←B	10	10
12	R→ R R B B / A R B A ←B	11	12
13	C→ C R R C / C R R C ←C	13	13
14	A→ A C A C / A C A C ←A	16	17
15	B→ R B R A / A B R B ←R	14	15
16	C→ C C C C / C C C C ←C	18	18
17	A→ B R R B / B R R R ←A	19	19
18	R→ R C C B / R C C B ←B	07	06
19	R→ B B B B / B A A B ←R	20	21
20	A→ A R R A / A R R A ←A	22	22
21	R→ B C C B / B C C B ←R	23	23
22	R→ C R R C / C R R C ←R	24	24
23	R→ R R C R / R R R R ←R	01	25
24	A→ A C C A / A R R A ←A	26	27
25	A→ A B B A / A B B A ←A	28	28
26	C→ C C A A / C C A A ←A	02	03
27	A→ A A A A / C A A A ←A	29	03
28	A→ A A A A / A A A C ←A	03	30
29	A→ A A C C / A A C C ←C	03	18
30	R→ A R R A / A R R A ←R	31	31
31	B→ B B B B / A B B A ←B	32	12
32	A→ B B B B / B B B B ←A	33	33
33	R→ B B B B / R R R R ←R	34	35
34	A→ C A A C / A A A A ←A	30 / W/A 37	36 / W/A 38
35	A→ A C B A / A C B A ←A	16	28
36	C→ C C R R / C C R R ←R	18	01
37	R→ R C C R / R C C R ←R	39	39
38	C→ R C C R / R C C R ←C	40	40
39	A→ A C A A / A C A A ←A	16	03
40	R→ R C R C / A R C A ←R	41	42
41	R→ R R C R / A R R A ←R	11	43
42	R→ R R C R / R R C R ←R	01	07
43	A→ A R B B / A R B B ←B	22	02
44	C→ C A A C / C A A C ←C	44	44
45	A→ C A A C / C A A C ←A	45	45
46	A→ A C C A / A C C A ←A	16	16
47	R→ B R R B / B R B B ←R	08	46
48	A→ B A A B / B A A B ←A	47	47
49	R→ R B B R / R B B R ←R	48	48
50	R→ R C R C / C R C R ←R	49	49
51	(blank)		
52	(blank)		
53	(blank)		
54	(blank)		
55	(blank)		

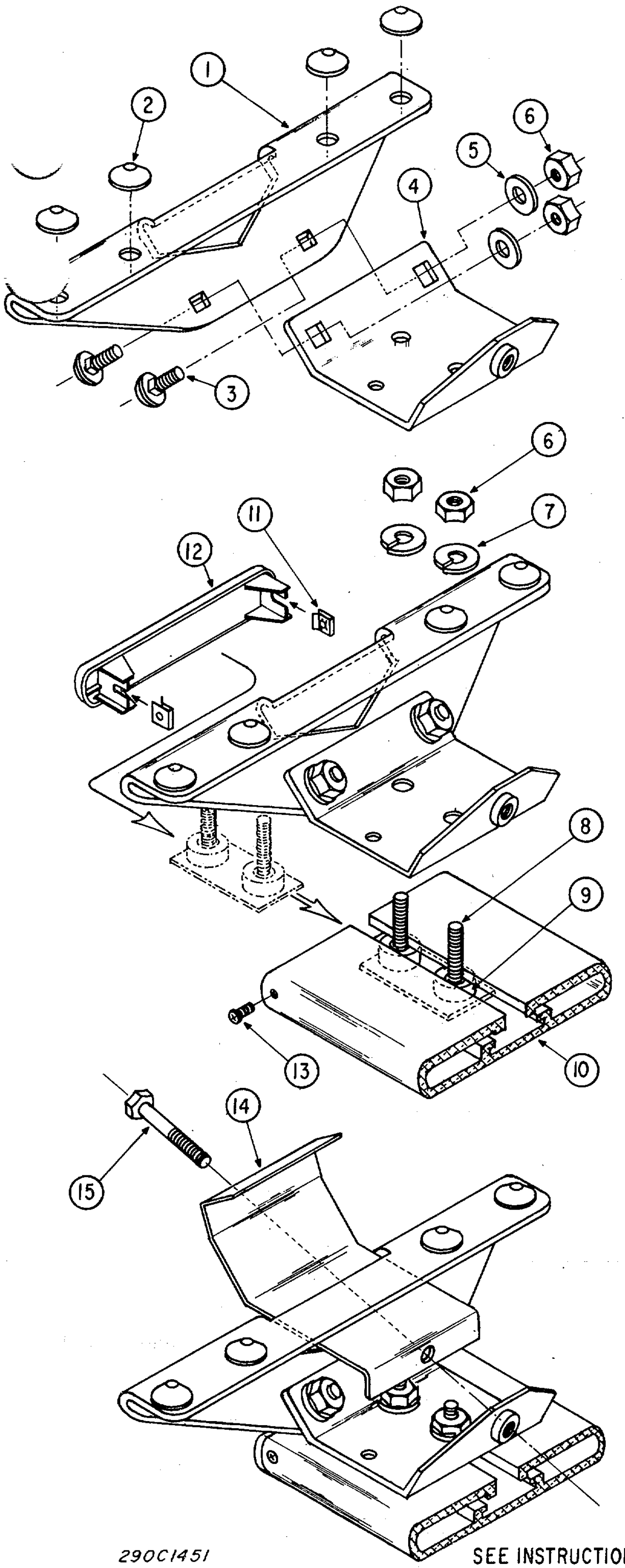
NOTES:

1. WHEN ORDERING DOME ASSEMBLIES, SPECIFY: MODEL, PASSENGER OR DRIVERS SIDE, AND PART NUMBER (8542D170-XX).
2. WHEN REQUESTING A DOME ASSEMBLY, OTHER THAN THE STANDARD VERSIONS SHOWN ON THIS SHEET, SUPPLY A SKETCH OF THE DESIRED DOME ASSEMBLY COLOR CONFIGURATION, SEND THE SKETCH TO THE ADDRESS SHOWN BELOW FOR CONFIRMATION OF AVAILABILITY.
3. AVAILABLE COLORS:

R	RED
B	BLUE
A	AMBER
C	CLEAR

FEDERAL SIGNAL CORPORATION
SIGNAL DIVISION
SERVICE DEPARTMENT
136th and WESTERN AVENUE
BLUE ISLAND, ILLINOIS 60406

290C1161-01 1 AUG 1981
PPL0143 MODELS 22, & 22H
AeroDynic® DOME ASSEMBLIES



SIGNAL DIVISION
Federal Signal Corporation

MODEL 22HK*3
AeroDynic®
HOOK-ON MOUNTING KIT

22HK*3 HOOK-ON MOUNTING KIT
AeroDynic® Model 22

PPL 0156
PARTS LIST

AUGUST 1981

Item No.	Description	Part No.	Qty.
1	Mounting Bracket	8542C285	2
2	Rubber Bumper	8542A146	8
3	5/16-18 x 3/4 SS Carriage Bolt	7017A023-12	4
4	Mounting Adapter	8542A300	2
5	5/16 Flat SS Washer	7072A031	4
6	5/16-18 SS Hex Nuts	7057A027	8
7	5/16 Split SS Lockwasher	7074A020	4
8	Clamp Block	8542A296	2
9	Spacer	230A147	4
10	Mounting Bar Extrusion	8542D174-11	1
11	Speed Nut	7060A015	4
12	End Caps	8542C175	2
13	6-32 x 1/2 Oval Hd. Screw	7000A363-08	4
14	Hook	8542B283	2
15	5/16-18 x 1-3/4 * 5/16-18 x 2-1/2 * SS Adjustment Bolt	7002A005-28 7002A005-40	2 2
Not Shown	Instruction Sheet	256A389B	1
	* Both are supplied, use length that best fits your vehicle.		

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, description, and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

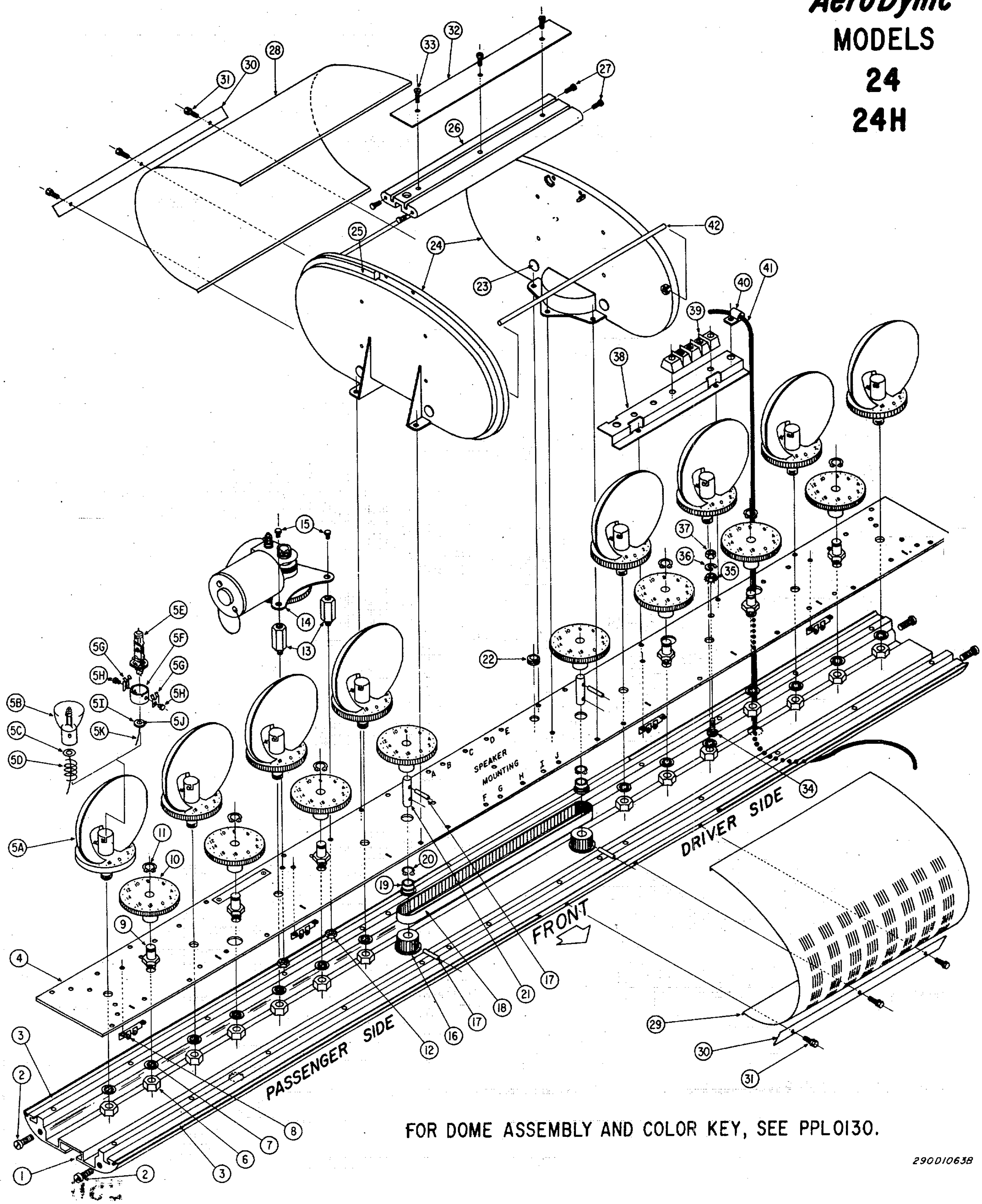
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Signal Division
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Blue Island, Illinois 60406

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SEE INSTRUCTION SHEET 256A389 BEFORE ASSEMBLY OF ITEMS 14 AND 15.

SIGNAL DIVISION
Federal Signal Corporation

AeroDynic®
MODELS
24
24H



FOR DOME ASSEMBLY AND COLOR KEY, SEE PPL0130.

290D1063B

AeroDynic®

PPL0127
PARTS LIST

MODELS 24 and 24H
FOR DOME ASSEMBLY (and Color Key) SEE PPL 0130

AUGUST 1981

Item No.	Description	Part No.	Model 24	Model 24H
1	Extrusion, Machined	8542D004-11	1	1
2	1/4-20 x 5/8 Screw Trs. Hd.	7000A457-10	4	4
3	Gasket, Dome	8542A006	4	4
4	Plate, Mounting	8542D040	1	1
5	Socket, Reflector, and Lamp Assy.	8542B111	8	0
	Socket, Reflector, and Lamp Assy.	8542B110	0	8
	Parts included in Item 5			
5A	Socket and Reflector Assy.	8542B022	8	0
	Socket and Reflector Assy.	8542B113	0	8
5B	Lamp, GE 1195	8440A108	8	0
5C	Lead Wire	8444A107-03	8	0
5D	Spring	8444A107-02	8	0
5E	Lamp, Halogen (H)	8440A265-01	0	8
5F	Bushing, Adapter	8440A250	0	8
5G	Retainer, Spring	8440A258	0	16
5H	8-32 x 5/8 Screw Pan Hd.	7011A104-03	0	16
5I	Insulator	8440A262	0	8
5J	Eyelet	8440A263	0	8
5K	Lead Wire	310A377	0	8
6	3/8 - 24 Nut, Hex.	7065A018A	14	14
7	Lockwasher	7075A032	14	14
8	Terminal Strip	8542A055A	4	4
9	Hub, Idler	8542A025B	6	6
10	Gear, Spur	8542B021	8	8
11	Ring, Retainer	8442A010	6	6
12	1/4 - 20 Nut, Ext. Keps	7058A005	2	2
13	Spacer	8542A071	2	2
14	Motor and Motor Bracket Assy.	8542C070	1	1
	Motor (separately)	8422B111-25	1	1
15	10-32 x 3/8 Screw Trs. Hd. Ext. Sems	7006A053-06	2	2
16	Pulley, Plastic	8542A059	2	2
17	Pin, Roll	7091A016	4	4
18	Belt, Timing	8542A014	1	1
19	Bearing	8542A054	2	2
20	Ring, Retaining	8542A061	2	2
21	Shaft, Pulley	8542A046	2	2
22	Grommet	8108A014	1	1
23	Plug, Hole	8542A096	4	4
24	Bulkhead	8542D007	2	2
25	Gasket, Bulkhead	8542A027	2	2
26	Extrusion Assy., Top	8542B023	1	1
27	8-32 x 3/8 Screw Pan Hd. Slt.	7000A401-06	4	4
28	Grille, Rear	8542D009	1	1
29	Grille, Front	8542D008	1	1
30	Grille, Clamp	8542B078	2	2
31	8-32 x 3/8 Screw Hex. Wsh. Hd.	7000A336-06	6	6
32	Plate, Cover	8542B016	1	1
33	10-32 x 3/8 Screw S. S. Trs. Hd. Slt.	7000A455-06	3	3
34	Ground Lug, Screw 10-32 x 5/8 Pan Hd. Ext. Sems	7006A004-10	1	1
35	10-32 Nut, Hex. Ext. Sems	7058A004	1	1
36	#10 Lockwasher, Split	7074A009	1	1
37	10-32 Nut, Hex. Dbl. Chmf.	7059A014	1	1
38	Bracket, Terminal Strip	8542B091	1	1
39	Terminal Strip (3 Terminals)	8542A080-01	1	1
40	Cable Clamp	7011A027-04	1	1
41	Cable, Power (4 Conductor)	310A374	1	1
42	Support, Bulkhead	8542A121	2	2
Not Shown	Gasket, Extrusion	8542A235	2	2
	Gasket, End Cap, Dome Assy.	8542A234	2	2

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, description, and part number.
Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

Federal Signal Corporation
Signal Division
136th and Western Avenue
Blue Island, Illinois 60406

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AeroDynic® DOME ASSEMBLIES
MODEL 24
STANDARD COLOR KEYS

PART NUMBER 8542D032A-XXX

COLOR KEY	DRIVERS SIDE	FRONT (top row)	(bottom row)	PASSENGER SIDE	DRIVERS SIDE W/O ALLEY	DRIVERS SIDE WITH ALLEY	PASSENGER SIDE W/O ALLEY	PASSENGER SIDE WITH ALLEY
1	R→	R R R R · R R R R	R R R R · R R R R	←R	-01	-04	-01	-04
2	B→	B B B B · B B B B	B B B B · B B B B	←B	-02	-05	-02	-05
3	A→	A A A A · A A A A	A A A A · A A A A	←A	-03	-21	-03	-21
4	R→	R R R R · B B B B	R R R R · B B B B	←B	-01	-04	-02	-05
5	R→	R R R C · C R R R	R R R C · C R R R	←R	-06	-12	-06	-12
6	R→	B R R R · R R R B	B R R R · R R R B	←R	-07	-13	-07	-13
7	R→	R R R R · A A A A	R R R R · A A A A	←A	-01	-04	-03	-21
8	B→	B B R R · R R B B	B B R R · R R B B	←B	-09	-11	-09	-11
9	B→	B B B C · C B B B	B B B C · C B B B	←B	-17	-14	-17	-14
10	R→	R R R C · C B B B	R R R C · C B B B	←B	-06	-12	-17	-14
11	R→	R R R R · R R R R	A R R R · R R R A	←R	-19	-20	-18	-22
12	R→	R R R R · R R B B	A A R R · R R B B	←B	-08	-10	-09	-11
13	R→	R R R R · B B B B	A A R R · B B B B	←B	-08	-10	-02	-05
14	R→	A R R R · R R R A	R R R B · B R R R	←R	-15		-16	
15	R→	R R R C · C R R R	R R R R · R R R R	←R	-110	-24	-111	-23
16	B→	B B B B · B B B B	R B B B · B B B R	←B	-93	-25	-94	-26
17	R→	R R R C · C R R R	A R R C · C R R R	←R	-29	-28	-06	-12
18	C→	C C C C · C C C C	C C C C · C C C C	←C	-27	-27	-27	-27
19	R→	A R R R · R R R A	A R R R · R R R A	←R	-85	-30	-85	-30
20	B→	A B B C · C B B A	A B B C · C B B A	←B	-109	-31	-109	-31
21	B→	R B B B · B B B R	A B B B · B B B A	←B	-32	-34	-33	-35
22	R→	R R R R · R R R R	A A R R · R R R R	←R	-08	-10	-01	-
23	B→	B B B B · R R R R	B B B B · R R R R	←R	-02	-05	-01	-04
24	R→	R R R C · C R R R	A R R C · C R R A	←R	-29	-28	-37	-36
25	R→	R R R R · R R A A	A A R R · R R R R	←R	-08	-10	-08	-10
26	R→	R B R R · R R B R	A R R R · R R R A	←R	-38	-40	-39	-41
27	B→	B B B B · B B B B	A B B B · B B B A	←B	-44	-42	-45	-43
28	R→	R R R R · R R R R	A A R R · R R A A	←R	-08	-10	-46	CALIFORNIA -303 / -402
29	R→	R C R C · C R C R	R C R C · C R C R	←R	-47	-63	-47	-
30	B→	B R R C · C R R B	B R R C · C R R B	←B	-70	-48	-70	-48
31	R→	A R R C · C R R A	A R R C · C R R A	←R	-159	-49	-159	-49
32	B→	A B B B · B B B A	A B B B · B B B A	←B	-72	-50	-72	-50
33	R→	R R R R · B B B B	B B B B · R R R R	←R	-107	-51	-107	-51
34	R→	C R R C · C R R C	R R R C · C R R R	←R	-86	-52	-87	-53
35	R→	R R R R · B B B B	A R R R · B B B A	←B	-19	-20	-45	-43
36	R→	R R R R · R R R R	A A R R · R R R R	←R	-08	-10	-01	-04

NOTES:

1. WHEN ORDERING DOME ASSEMBLIES, SPECIFY: MODEL, PASSENGER OR DRIVERS SIDE, WITH WITHOUT ALLEY LIGHTS, AND PART NUMBER (8542 D032A-XXX).
2. WHEN REQUESTING A DOME ASSEMBLY, OTHER THAN THE STANDARD VERSIONS SHOWN ON THIS SHEET, SUPPLY A SKETCH OF THE DESIRED DOME ASSEMBLY COLOR CONFIGURATION, SEND THE SKETCH TO THE ADDRESS SHOWN BELOW FOR CONFIRMATION OF AVAILABILITY.
3. AVAILABLE COLORS:

R	RED
B	BLUE
A	AMBER
C	CLEAR

FEDERAL SIGNAL CORPORATION
SIGNAL DIVISION
SERVICE DEPARTMENT
136th and WESTERN AVENUE
BLUE ISLAND, ILLINOIS 60406

290C1066B-01

PPL 0130 MODEL 24
AeroDynic® DOME ASSEMBLIES 1 AUG 1981

SIGNAL DIVISION
Federal Signal Corporation

AeroDynic® DOME ASSEMBLIES MODEL 24 STANDARD COLOR KEYS

PART NUMBER 8542D032A-XXX

COLOR KEY	DRIVERS SIDE (FRONT row / rear row)	PASSENGER SIDE (FRONT row / rear row)	DRIVERS SIDE W/O ALLEY	DRIVERS SIDE WITH ALLEY	PASSENGER SIDE W/O ALLEY	PASSENGER SIDE WITH ALLEY
37	R→ R R R R / A R R R	B B B B / B B B B ←B	- 19	- 20	- 02	- 05
38	B→ B R R C / A R R C	C R R B / C R R A ←B		- 54		- 55
39	A→ A A A A / R R A A	A A A A / A A C C ←A	- 56		- 57	
40	C→ R R R R / A R R R	B B B C / B B B A ←C	- 58	- 58	- 59	- 59
41	C→ R R R C / R R R C	C R R R / C R R R ←C	- 60	- 60	- 60	- 60
42	C→ C R C R / C R C R	R C R C / R C R C ←C	- 61	- 61	- 61	- 61
43	C→ C R R R / C R R R	R R R C / R R R C ←C	- 62	- 62	- 62	- 62
44	R→ C R R R / R R R R	B B B C / B B B B ←B	- 83	- 64	- 134	- 65
45	R→ B B B B / R R R R	R R R R / B B B B ←R		- 66		- 66
46	R→ R R R C / R R R R	C R R R / A A A A ←R	- 110	- 24		- 67
47	R→ C R R R / A R R R	R R R C / R R R A ←R	- 126	- 68	- 127	- 69
48	B→ R B B B / R B B B	B B B A / B B B A ←B	- 71	- 75	- 72	- 50
49	R→ R R C R / R R C R	R C R R / R C R R ←R	- 123	- 73	- 123	- 73
50	R→ R B R B / R B R B	B R B R / B R B R ←R	- 74	- 273	- 74	- 273
51	B→ R B B B / R B B B	B B B R / B B B R ←B	- 71	- 75	- 71	- 75
52	R→ B R R R / A R R R	R R R B / R R R A ←R	- 76	- 78	- 77	- 79
53	B→ B B B A / B B B A	A B B B / A B B B ←B	- 80		- 80	
54	A→ A B B B / A B B B	B B B A / B B B A ←A	- 81	- 82	- 81	- 82
55	R→ C R R R / R R R R	R R R C / R R R R ←R	- 83	- 64	- 84	- 133
56	R→ B R R C / R R R C	C R R R / C R R B ←R	- 88		- 88	
57	R→ R R R R / B R R R	R R R R / R R R B ←R	- 89	- 91	- 90	- 92
58	A→ C R R C / A R R C	C R R C / C R R A ←A		- 95		- 96
59	A→ C R R C / A R R C	C B B C / C B B A ←A		- 95		- 97
60	R→ R R R R / R R R R	C C C C / C C C C ←C	- 01	- 04	- 27	- 27
61	B→ A B B C / B B B C	C R R A / C R R R ←R	- 105	- 98	- 29	- 28
62	R→ R R R C / C R R C	C R R C / C R R R ←R	- 87	- 53	- 87	- 53
63	R→ R R R B / A R R R	B R R R / R R R A ←R	- 16		- 15	
64	R→ R C B C / R C B C	C B C R / C B C R ←R	- 100	- 113	- 100	- 113
65	R→ R R R R / A R R R	B B B B / B B B B ←B	- 19	- 20	- 02	- 05
66	R→ R R R R / A R R R	R R R R / R R R R ←R	- 19	- 20	- 01	- 04
67	A→ A C A C / A C A C	C A C A / C A C A ←A	- 101	- 299	- 101	- 299
68	B→ C B B C / B B B C	C B B C / C B B B ←B		- 102	- 144	- 103
69	A→ A A R R / A A R R	R R A A / R R A A ←A	- 99		- 99	
70	B→ B B B B / A B B B	B B B R / B B B A ←B	- 44	- 42	- 33	- 35
71	B→ B B B C / A B B C	C B B B / C B B A ←B	- 104	- 190	- 105	- 98
72	R→ R R R C / R R R C	C B B B / C B B A ←B	- 06	- 12	- 105	- 98

NOTES:

1. WHEN ORDERING DOME ASSEMBLIES, SPECIFY: MODEL, PASSENGER OR DRIVERS SIDE, WITH OR WITHOUT ALLEY LIGHTS, AND PART NUMBER (8542D032A-XXX).
2. WHEN REQUESTING A DOME ASSEMBLY, OTHER THAN THE STANDARD VERSIONS SHOWN ON THIS SHEET, SUPPLY A SKETCH OF THE DESIRED DOME ASSEMBLY COLOR CONFIGURATION, SEND THE SKETCH TO THE ADDRESS SHOWN BELOW FOR CONFIRMATION OF AVAILABILITY.
3. AVAILABLE COLORS:

R	RED
B	BLUE
A	AMBER
C	CLEAR

FEDERAL SIGNAL CORPORATION
SIGNAL DIVISION
SERVICE DEPARTMENT
136th and WESTERN AVENUE
BLUE ISLAND, ILLINOIS 60406

290C10668-02

PPL 0130 MODEL 24
AeroDynic® DOME ASSEMBLIES 1 AUG 1981

SIGNAL DIVISION
Federal Signal Corporation

AeroDynic® DOME ASSEMBLIES
MODEL 24
STANDARD COLOR KEYS

PART NUMBER 8542D032A-XXX

COLOR KEY	Drivers side feed	Top row (FRONT)	Bottom row	Passenger side feed	DRIVERS SIDE W/O ALLEY	DRIVERS SIDE WITH ALLEY	PASSENGER SIDE W/O ALLEY	PASSENGER SIDE WITH ALLEY
73	A→	A R R B · B R R A	A R R B · B R R A	←A		-106		-106
74	R→	R R R C · C B B B	A R R C · C B B A	←B	29	28	-105	-98
75	R→	R C C R · C R C R	R C C R · C R C R	←R		-108	-47	-63
76	R→	C R R C · C B B C	R R R C · C B B B	←B	-86	-52	-144	-103
77	B→	C B B B · B B B C	B B B B · B B B B	←B	-182	-112	-134	-65
78	A→	A B B C · C B B A	A B B C · C B B A	←A		-114		-114
79	A→	A A A A · A A A A	R A A A · A A A R	←A	-115	-293	-116	-294
80	R→	R C R C · C R C R	R R R R · R R R R	←R	-276	-117	-275	-118
81	R→	R R R R · R R R R	A A A A · A A A A	←R		-119		-120
82	R→	R R R C · C R R R	A A R C · C R A A	←R		-121		-122
83	R→	R R C R · R C R C	R R C R · R C R C	←R	-123	-73	-124	-337
84	R→	R R C C · C C R R	R R C C · C C R R	←R	-125		-125	
85	A→	A R R R · R R R A	A R R R · R R R A	←A	-226	-128	-226	-128
86	R→	B B R R · R R B B	B B R R · R R B B	←R	-129	-319	-129	-319
87	R→	B R R R · R R R R	R R R R · R R R B	←R	-130		-130	
88	C→	C C C C · R R R R	C C C C · R R R R	←R	-27	-27	-01	-04
89	R→	R C R C · R C R C	R C R C · R C R C	←R	-47	-63	-124	-337
90	B→	B R B C · C B R B	B R B C · C B R B	←B	-131	-238	-131	-238
91	R→	C R R R · B B B C	A R R R · B B B B	←B	-126	-68	-134	-65
92	R→	R R R C · C B B B	A R R C · C B B A	←B	-29	-28	-105	-98

AeroDynic® DOME ASSEMBLIES
MODEL 24
STANDARD COLOR KEYS

PART NUMBER 8542D032A-XXX

COLOR KEY	Drivers side feed	Top row (FRONT)	Bottom row	Passenger side feed	DRIVERS SIDE W/O ALLEY	DRIVERS SIDE WITH ALLEY	PASSENGER SIDE W/O ALLEY	PASSENGER SIDE WITH ALLEY
93	R→	R R R R · R C R C	R R R R · R C R C	←C	-01	-04	-61	-61
94	R→	R R B C · C B R R	R R B C · C B R R	←R	-135		-135	
95	R→	R C R B · B R C R	R C R B · B R C R	←R	-136		-136	
96	B→	B B B B · R R B B	A B B B · R R B B	←B	-44	-42	-09	-11
97	R→	R R R R · B B B R	A R R R · B B B A	←B	-19	-20	-33	-35
98	B→	R R R R · B B B B	R R R R · B B B B	←R		-137		-138
99	R→	R R R C · R R B B	R R R C · R R B B	←B	-06	-12	-09	-11
100	B→	B R R B · B R R B	B R R B · B R R B	←B	-139		-139	
101	R→	R R R R · R R R C	R R R R · R R R R	←R	-01	-04	-84	-1[illegible]
102	B→	B B B B · B B B C	B B B B · B B B B	←B	-02	-05	-134	-65
103	A→	A A A A · A A A C	A A A A · A A A A	←A	-03	-21	-140	-141
104	R→	R R R R · B B B C	R R R R · B B B B	←B	-01	-04	-134	-65
105	R→	R R R C · C R R C	R R R C · C R R R	←R	-06	-12	-87	-53
106	R→	B R R R · R R R C	B R R R · R R R B	←R	-07	-13	-142	-143
107	R→	R R R R · A A A C	R R R R · A A A A	←A	-01	-04	-140	-141
108	B→	B B B C · C B B C	B B B C · C B B B	←B	-17	-14	-144	-103

NOTES:

1. WHEN ORDERING DOME ASSEMBLIES, SPECIFY: MODEL, PASSENGER OR DRIVERS SIDE, WITH OR WITHOUT ALLEY LIGHTS, AND PART NUMBER (8542D032A-XXX).
2. WHEN REQUESTING A DOME ASSEMBLY, OTHER THAN THE STANDARD VERSIONS SHOWN ON THIS SHEET, SUPPLY A SKETCH OF THE DESIRED DOME ASSEMBLY COLOR CONFIGURATION, SEND THE SKETCH TO THE ADDRESS SHOWN BELOW FOR CONFIRMATION OF AVAILABILITY.
3. AVAILABLE COLORS:

R	RED
B	BLUE
A	AMBER
C	CLEAR

FEDERAL SIGNAL CORPORATION
SIGNAL DIVISION
SERVICE DEPARTMENT
136th and WESTERN AVENUE
BLUE ISLAND, ILLINOIS 60406

290C10668-03

PPL 0130 MODEL 24
AeroDynic® DOME ASSEMBLIES

1 AUG 1981

SIGNAL DIVISION
Federal Signal Corporation

AeroDynic® DOME ASSEMBLIES MODEL 24 STANDARD COLOR KEYS — COLOR KEY	DRIVERS SIDE (FRONT row / rear row)	PASSENGER SIDE (FRONT row / rear row)	PART NUMBER 8542D032A-XXX DRIVERS SIDE W/O ALLEY	DRIVERS SIDE WITH ALLEY	PASSENGER SIDE W/O ALLEY	PASSENGER SIDE WITH ALLEY
109	R→ R R R C / R R R C	C B B C / C B B B ←B	- 06	- 12	- 144	- 103
110	R→ C R R C / R R R C	C R R C / C R R R ←R	- 86	- 52	- 87	- 53
111	R→ R R R R / A R R R	R R R C / R R R A ←R	- 19	- 20	- 127	- 69
112	R→ C R R R / A R R R	R R R C / R R R A ←R	- 126	- 68	127	- 69
113	B→ B B B B / A B B B	B B B C / B B B A ←B	- 44	- 42	- 145	- 146
114	R→ R R R R / R R R R	C R C R / C R C R ←R	- 01	- 04	- 47	- 63
115	R→ A R R R / A R R R	B B B A / B B B A ←B	- 85	- 30	- 72	- 50
116	R→ C R R R / A R R R	B B B C / B B B A ←B	- 126	- 68	- 145	- 146
117	R→ R R R C / A R R R	C B B B / B B B A ←B	- 147	- 149	- 148	- 164
118	R→ R R R C / A R R R	C B B B / B B B B ←B	- 147	- 149		- 150
119	R→ R R R C / C R R C	C B B B / C B B C ←B	- 87	- 53		- 102
120	R→ R R B B / R R B B	B B R R / B B R R ←R	- 153		- 153	
121	B→ R B B B / R B B B	R R R B / R R R B ←R	- 71	- 75	- 07	- 13
122	A→ A A A A / C A A A	A A A A / A A A C ←A	- 140 / - 151 HOLMES	- 141	- 211 / - 152 HOLMES	- 222
123	C→ A R R R / C R R R	R R R A / R R R C ←C	- 154	- 154	- 155	- 155
124	R→ C C C C / R R R R	C C C C / R R R R ←R	- 156	- 197	- 157	- 198
125	R→ B R R C / B R R C	C R R B / C R R B ←R	- 158	- 283	- 158	- 283
126	A→ C A A A / A A A A	A A A C / A A A A ←A	- 152	- 222	- 151	- 141
127	B→ B B B C / R B B C	C B B B / C B B R ←B	- 160		- 161	
128	A→ C A A A / R A A A	A A A C / A A A R ←A		- 162		- 163
129	R→ R B R B / R B R B	R B R B / R B R B ←B	- 74	- 273	- 165	
130	R→ R R R R / A A R R	C B B B / C B B B ←B	- 08	- 10	- 17	- 14
131	R→ A R R R / R R R R	B B B R / B B B A ←B	- 18	- 22	- 33	- 35
132	R→ R C R C / C C R C	C R C R / C R C C ←R	- 166		- 167	
133	B→ C B B C / C B B C	C B B C / C B B C ←B	- 168		- 168	
134	R→ B R R R / B R R R	B B B R / B B B R ←B	- 07	- 13	- 71	- 75
135	R→ A C C C / R C C C	C C C R / C C C A ←R		- 169		- 169
136	B→ R B B B / C B B B	B B B C / B B B R ←B		- 170		- 170
137	R→ R R B B / R R B B	B B R C / B B R R ←R		- 171		- 172
138	R→ R A A A / R A A A	A A A R / A A A R ←R		- 173		- 173
139	R→ C R R C / C R R C	C R R C / C R R C ←R	- 174	- 247	- 174	- 247
140	R→ R R R R / A R R R	B B B C / B B B A ←B	- 19	- 20	- 145	- 146
141	C→ R R R C / A R R C	C R R R / C R R A ←C	- 175	- 175	- 176	- 176
142	R→ R R R C / R R R R	C A A A / R R R R ←R	- 110	- 24		- 177
143	A→ A R R C / A R R C	C R R A / C R R A ←A	- 362	- 178	- 362	- 178
144	A→ C A A C / R A A C	C A A C / C A A R ←A	- 179	- 372	- 180	- 373

NOTES:

1. WHEN ORDERING DOME ASSEMBLIES, SPECIFY: MODEL, PASSENGER OR DRIVERS SIDE, WITH OR WITHOUT ALLEY LIGHTS, AND PART NUMBER (8542 D 032A-XXX).
2. WHEN REQUESTING A DOME ASSEMBLY, OTHER THAN THE STANDARD VERSIONS SHOWN ON THIS SHEET, SUPPLY A SKETCH OF THE DESIRED DOME ASSEMBLY COLOR CONFIGURATION, SEND THE SKETCH TO THE ADDRESS SHOWN BELOW FOR CONFIRMATION OF AVAILABILITY.
3. AVAILABLE COLORS:

R	RED
B	BLUE
A	AMBER
C	CLEAR

FEDERAL SIGNAL CORPORATION
SIGNAL DIVISION
SERVICE DEPARTMENT
136th and WESTERN AVENUE
BLUE ISLAND, ILLINOIS 60406

290C1066B-04

PPL 0130 MODEL 24
AeroDynic® DOME ASSEMBLIES 1 AUG 1981

SIGNAL DIVISION
Federal Signal Corporation

AeroDynic® DOME ASSEMBLIES
MODEL 24
STANDARD COLOR KEYS

PART NUMBER 8542D032A-XXX

COLOR KEY	Entry	DRIVERS SIDE (top)	DRIVERS SIDE (bottom)	PASSENGER SIDE (top)	PASSENGER SIDE (bottom)	Entry	DRIVERS SIDE W/O ALLEY	DRIVERS SIDE WITH ALLEY	PASSENGER SIDE W/O ALLEY	PASSENGER SIDE WITH ALLEY
145	A→	A A A C	A A A C	C A A A	C A A A	←A	-181	-218	-181	-218
146	B→	B B B B	C B B B	B B B B	B B B C	←B	-134 -188 HOLMES		-182 -189 HOLMES	
147	R→	A B B C	R B B C	C B B R	C B B A	←R	-183		-183	
148	R→	R B B B	A B B B	R R R C	R R R C	←R	-184		-185	
149	R→	R R R R	C R R R	R R R R	R R R C	←R	-186		-187	
150	B→	R B B B	R B B B	B B B B	B B B B	←B	-71	-75	-02	-05
151	R→	R R R C	A R R R	C B B B	B B B A	←B		-191		-192
152	R→	R R R C	A R R R	C B B C	B B B A	←R		-191		-193
153	A→	A A A A	A A A A	B B B B	B B B B	←B	-03	-21	-02	-05
154	B→	R R R C	R R R C	C B B B	C B B B	←B		-194	-17	-14
155	A→	R A A C	A A A C	C A A R	C A A A	←A		-195		-196
156	R→	C R C R	C R C R	R C R C	R C R C	←R	-124	-337	-124	-337
157	R→	A R R R	R R R R	B B B A	B B B R	←R	-18	-22	-32	-34
158	R→	B B R R	B B R R	B B R R	B B R R	←B		-199		-200
159	B→	B B B C	R B B C	C B B C	C B B R	←B		-160		-202
160	B→	C B B C	R B B C	C B B C	C B B R	←B		-201		-202
161	R→	C R B R	R R B R	R B R C	R B R R	←R	-203	-243	-204	-244
162	R→	R R R B	R R R B	B R R R	B R R R	←R		-205		-205
163	R→	R R R C	A R R R	C R R R	R R R A	←R	-147	-149	-206	-246
164	R→	R R R C	B B B C	R R R C	R R R A	←R		-207	-127	-69
165	R→	A A A C	R A A C	C A A A	C A A R	←R	-208		-209	
166	R→	R R R C	A R R C	C R R C	C R R A	←R	-29	-28		-210
167	A→	A C A C	R C A C	A C C A	A A C R	←A		-212		-213
168	R→	A R C R	A R C R	R C R A	R C R A	←R		-214		-214
169	R→	R R R B	A R R B	B R R R	R R R A	←R	-215		-15	
170	A→	A A A C	A A A C	C A A C	C A A A	←A	-181	-218	-216	-219
171	R→	R R R C	A R R R	C B B B	B B B B	←B	-147	-149	-217	
172	R→	R R R C	R R B A	C B B C	A R B B	←B		-220		-221
173	C→	C C C C	C C C C	B B B B	B B B B	←B	-27	-27	-02	-0[illegible]
174	A→	A A A C	A R A C	C A A A	C A R A	←A		-223		-224
175	R→	R R R A	R R R A	A R R R	A R R R	←R	-225		-225	
176	A→	A A A A	R R R R	A A A A	R R R R	←A	-227	-289	-262	-290
177	B→	B R R R	B R R R	B B B R	B B B R	←R	-228		-229	
178	B→	B B B C	A B B B	C B B B	B B B A	←B		-230	-148	-164
179	A→	R A A A	R A A A	A A A R	A A A R	←A	-306	-231	-306	-231
180	B→	B B A A	B B A A	A A B B	A A B B	←B	-232		-232	

(FRONT is marked at the centre of each color key.)

NOTES:

1. WHEN ORDERING DOME ASSEMBLIES, SPECIFY: MODEL, PASSENGER OR DRIVERS SIDE, WITH OR WITHOUT ALLEY LIGHTS, AND PART NUMBER (8542D032A-XXX).
2. WHEN REQUESTING A DOME ASSEMBLY, OTHER THAN THE STANDARD VERSIONS SHOWN ON THIS SHEET, SUPPLY A SKETCH OF THE DESIRED DOME ASSEMBLY COLOR CONFIGURATION, SEND THE SKETCH TO THE ADDRESS SHOWN BELOW FOR CONFIRMATION OF AVAILABILITY.
3. AVAILABLE COLORS:

R	RED
B	BLUE
A	AMBER
C	CLEAR

FEDERAL SIGNAL CORPORATION
SIGNAL DIVISION
SERVICE DEPARTMENT
136th and WESTERN AVENUE
BLUE ISLAND, ILLINOIS 60406

290C1066B-05

PPL 0130 MODEL 24
AeroDynic® DOME ASSEMBLIES

1 AUG 1981

SIGNAL DIVISION
Federal Signal Corporation

AeroDynic® DOME ASSEMBLIES
MODEL 24
STANDARD COLOR KEYS

PART NUMBER 8542D032A-XXX

In each color key below, the two rows read top / bottom. Each row lists the drivers side, then "FRONT", then the passenger side.

COLOR KEY	Color key (drivers side / FRONT / passenger side)	DRIVERS SIDE W/O ALLEY	DRIVERS SIDE WITH ALLEY	PASSENGER SIDE W/O ALLEY	PASSENGER SIDE WITH ALLEY
181	B→ R R R R / FRONT / R R R R; R R R R / R R R R ←B	-233		-233	
	R→ R B B C / FRONT / C B B R; R B B C / C B B R ←R		-234		-234
183	R→ R R R C / FRONT / C B B C; A R R C / C B B A ←B	-29	-28		-235
184	B→ B B B C / FRONT / C R R C; A B B C / C R R A ←R	-104	-190		-210
185	B→ B B B C / FRONT / C B B C; A B B C / C B B A ←B	-104	-190		-235
186	R→ C R C R / FRONT / R C R C; A R C R / R C R A ←R		-236		-237
187	R→ R B R C / FRONT / C R B R; R B R C / C R B R ←R	-264	-239	-264	-239
188	R→ A C R C / FRONT / C R C A; A C R C / C R C A ←R		-240		-240
	B→ A B B C / FRONT / C B B A; A B B B / B B B A ←B		-241		-242
190	R→ B B B B / FRONT / B B B B; R R R R / B B B B ←B		-66	-02	-05
191	R→ R C C C / FRONT / C C C R; R C C C / C C C R ←R		-245		-245
192	R→ C R R C / FRONT / C B B C; C R R C / C B B C ←B	-174	-247		-248
193	B→ B B B C / FRONT / C R R R; B B B C / C R R R ←R	-17	-14	-06	-12
194	B→ B R R C / FRONT / C R R B; R B R C / C R B R ←B	-249		-250	
195	B→ B B B C / FRONT / C R R C; B B B C / C R R R ←R	-17	-14	-87	-53
196	R→ R R R R / FRONT / C R R R; R R R R / C R R R ←R	-01	-04	-06	-12
	R→ R B B B / FRONT / B B B C; R B B B / B B B R ←R		-251		-252
198	B→ B B B B / FRONT / R R R C; B B B B / R R R R ←R	-02	-05	-84	-133
199	R→ R R R R / FRONT / B B B C; A R R R / B B B B ←B	-19	-20	-134	-65
200	R→ C C B C / FRONT / C B C R; C C B C / C B C R ←R		-253	-100	-113
201	R→ R R R R / FRONT / R R R C; R R R R / R R A A ←R	-01	-04		-254
202	R→ R R R C / FRONT / C R R R; R R R C / C A A A ←R	-06	-12		-255
203	R→ R R R R / FRONT / C R R C; A R R R / C R R A ←A	-29	-28		-96
204	C→ C C A A / FRONT / A A C C; C C A A / A A C C ←C	-256	-256	-256	-256
205	R→ A C R C / FRONT / C R C R; A C R C / C R C R ←R		-240	-47	-63
206	R→ B R R C / FRONT / C R R R; R R R C / B R R R ←R		-257		-258
207	R→ R C R C / FRONT / C R C R; A C R C / C R C R ←R		-259	-47	-63
208	B→ B B B B / FRONT / B B B B; R R R R / R R R R ←B	-260	-365	-261	-369
209	B→ B B B B / FRONT / C C C C; B B B B / C C C C ←C	-02	-05	-27	-27
210	R→ B R C R / FRONT / R C R B; A R C R / R C R A ←R		-263		-268
211	R→ C R R R / FRONT / R R R C; C R R R / R R R C ←R		-265		-265
212	R→ R R C R / FRONT / R C R R; R R R R / R R R R ←R	-266	-329	-267	-330
213	R→ R C C R / FRONT / R C C R; R C C R / R C C R ←R	-270		-270	
214	R→ R C R C / FRONT / C R C R; A C R C / C R C A ←R	-408	-271	-409	-272
215	R→ R R R C / FRONT / C R R C; A R R C / C R R A ←R	-29	-28		-210
216	R→ C C R C / FRONT / C R C C; C C R C / C R C C ←R		-274		-274

NOTES:

1. WHEN ORDERING DOME ASSEMBLIES, SPECIFY: MODEL, PASSENGER OR DRIVERS SIDE, WITH OR WITHOUT ALLEY LIGHTS, AND PART NUMBER (8542D032A-XXX).
2. WHEN REQUESTING A DOME ASSEMBLY, OTHER THAN THE STANDARD VERSIONS SHOWN ON THIS SHEET, SUPPLY A SKETCH OF THE DESIRED DOME ASSEMBLY COLOR CONFIGURATION, SEND THE SKETCH TO THE ADDRESS SHOWN BELOW FOR CONFIRMATION OF AVAILABILITY.
3. AVAILABLE COLORS:

R	RED
B	BLUE
A	AMBER
C	CLEAR

FEDERAL SIGNAL CORPORATION
SIGNAL DIVISION
SERVICE DEPARTMENT
136th and WESTERN AVENUE
BLUE ISLAND, ILLINOIS 60406

290C1066B-06

PPL 0130 MODEL 24
AeroDynic® DOME ASSEMBLIES

1 AUG 1981

SIGNAL DIVISION
Federal Signal Corporation

AeroDynic® DOME ASSEMBLIES
MODEL 24
STANDARD COLOR KEYS

PART NUMBER 8542D032A-XXX

COLOR KEY	Driver end	DRIVERS SIDE (top / bottom)	FRONT	PASSENGER SIDE (top / bottom)	Passenger end	DRIVERS SIDE W/O ALLEY	DRIVERS SIDE WITH ALLEY	PASSENGER SIDE W/O ALLEY	PASSENGER SIDE WITH ALLEY
217	R →	A A A A / R R R R		A A A A / R R R R	← R	-275		-276	
218	C →	C R R R / R R R R		R R R C / R R R R	← C	-278	-278	-279	-279
219	R →	R B C R / R B C R		R C B R / R C B R	← R	-277		-277	
220	B →	B R B B / B R B B		B B R B / B B R B	← B		-269		-269
221	R →	A R R C / C R R C		C R R C / C R R A	← R	-280		-280	
222	R →	R R R R / A R R R		B B B C / B B B A	← R	-19	-20		-281
223	B →	B B B C / A B B C		C R R R / C R R A	← R	-104	-190	-37	-36
224	R →	R R B B / R R B B		B B R R / B B R R	← R		-171		-171
225	A →	C A A A / C A A A		A A A C / A A A C	← A	-282	-282	-282	-282
226	B →	B B B C / A B B C		C B B C / C B B B	← B	-104	-190	-144	-103
227	R →	R B R R / A B A R		R A B A / R R B R	← R		-284		-284
228	R →	R B B R / A B B R		R B B A / R B B R	← R		-285		-285
229	B →	A B A R / C B R R		R R B C / R A B A	← B		-286		-286
230	B →	A B B R / C B B R		R B B C / R B B A	← B		-287		-287
231	B →	A B A R / C B B R		R B B C / R A B A	← B		-288		-288
232	R →	R R R C / R R R C		C B B B / C B B C	← B	-06	-12		-102
233	R →	C R R C / A R R C		C R R C / C R R A	← R		-291		-295
234	B →	R R B B / R R B B		B B A A / B B A A	← B	-292		-296	
235	R →	B R R C / B R R R		C B B R / B B B R	← B	-297		-298	
236	B →	B B B B / B B B B		A A A A / A A A A	← A	-02	-05	-03	-21

AeroDynic® DOME ASSEMBLIES
MODEL 24
STANDARD COLOR KEYS

PART NUMBER 8542D032A-XXX

COLOR KEY	Driver end	DRIVERS SIDE (top / bottom)	FRONT	PASSENGER SIDE (top / bottom)	Passenger end	DRIVERS SIDE W/O ALLEY	DRIVERS SIDE WITH ALLEY	PASSENGER SIDE W/O ALLEY	PASSENGER SIDE WITH ALLEY
237	R →	R R R C / A R R R		C R R C / R R R A	← R		-191		300
238	R →	R R R C / B B B C		C B B C / C R R R	← R		-301		-
239	R →	R C B R / R C B R		R B C R / R B C R	← R		-304		-304
240	R →	R R R C / A A A C		C R R R / C A A A	← R		-305		-255
241	R →	R C R C / R R R C		C R C R / C R R A	← R		-307		-308
242	R →	A R R R / A R R R		R R R C / R R R C	← R	-83	-30	-127	-69
243	R →	B R R C / A R R C		C R R C / C R R A	← R		309		295
244	B →	B R R R / B R R R		R R R B / R R R B	← B	-310	-393	-310	393
245	R →	A R A R / A R A R		R A R A / R A R A	← R	SAME AS COLOR KEY 300	-311		-311
246	R →	A B B B / B B B A		A B B B / B B B A	← R		-312		
247	R →	B R B R / B R B R		R B R B / R B R B	← R		-313		-313
248	R →	R R R A / A R R R		R R R A / A R R R	← R		-314		-314
249	R →	R C R C / R C R C		C B C B / C B C B	← R	-47	-63	-315	
250	A →	C A A A / R A A A		A A A C / A A A R	← A	-316		-317	
251	C →	C C C C / C C C C		R R R R / R R R R	← C	-27	-27	-318	-318
252	A →	B B B C / B B B C		C R R C / C R R R	← A		-320		-321

NOTES:

1. WHEN ORDERING DOME ASSEMBLIES, SPECIFY: MODEL, PASSENGER OR DRIVERS SIDE, WITH WITHOUT ALLEY LIGHTS, AND PART NUMBER (8542D032A-XXX).
2. WHEN REQUESTING A DOME ASSEMBLY, OTHER THAN THE STANDARD VERSIONS SHOWN ON T SHEET, SUPPLY A SKETCH OF THE DESIRED DOME ASSEMBLY COLOR CONFIGURATION, SEND THE SKETCH TO THE ADDRESS SHOWN BELOW FOR CONFIRMATION OF AVAILABILITY.
3. AVAILABLE COLORS:

R	RED
B	BLUE
A	AMBER
C	CLEAR

FEDERAL SIGNAL CORPORATION
SIGNAL DIVISION
SERVICE DEPARTMENT
136th and WESTERN AVENUE
BLUE ISLAND, ILLINOIS 60406

290C10668-07

PPL 0130 MODEL 24
AeroDynic® DOME ASSEMBLIES 1 AUG 1981

SIGNAL DIVISION
Federal Signal Corporation

AeroDynic® DOME ASSEMBLIES — MODEL 24 — STANDARD COLOR KEYS

PART NUMBER 8542D032A-XXX

COLOR KEY	Configuration (DRIVERS SIDE ← FRONT → PASSENGER SIDE)	DRIVERS SIDE W/O ALLEY	DRIVERS SIDE WITH ALLEY	PASSENGER SIDE W/O ALLEY	PASSENGER SIDE WITH ALLEY
253	B→ C B B B | B B B C / A B B B | B B B A ←B	-322		-145	-146
254	R→ R R R R | B B B C / A R R R | B B B A ←B	-19	-20	-145	-146
255	R→ R R R R | B B B R / A R R R | B B B C ←B	-19	-20		-326
256	R→ R R B C | C B R C / R R B C | C B R R ←R		-323		-324
257	C→ C A A A | A A A C / C A A A | A A A C ←C	-325	-325	-325	-325
258	R→ R R R C | C A A A / R R R C | C A A A ←A	-06	-12	-181	-218
259	B→ B C B C | C B C B / B C B C | C B C B ←B	-327		-327	
260	A→ R R R R | A A A A / A R R R | A A A A ←A	-19	-20	-03	-21
261	C→ C B B B | B B B C / C B B B | B B B C ←C	-328	-328	-328	-328
262	R→ R R C R | R C R R / A R C R | R C R A ←R	-331		-332	
263	R→ A R R B | C R R A / A R R B | C R R A ←R		-333	-159	-49
264	R→ R R C R | R C R C / A R C R | R C R A ←R		-340		-237
265	A→ A B C B | B C B A / A B C B | B C B A ←A		-334		-334
266	R→ R B B R | R B B R / R B B R | R B B R ←R	-335		-335	
267	R→ R A R R | B B B C / R A R R | B B B A ←B		-336	-145	-146
268	R→ R R R R | R R R R / R R R A | A R R R ←R		-338		-339
269	R→ C R R C | C R R C / A R R R | R R R A ←R		-341		-300
270	R→ R R R C | C R R B / A B R C | C R R A ←R	-342		-343	
271	R→ R R R C | C R R R / R C R R | R R C R ←R	-344		-345	
272	B→ C B B B | B B B C / R B B B | B B B R ←B		-346		-170

AeroDynic® DOME ASSEMBLIES — MODEL 24 — STANDARD COLOR KEYS

PART NUMBER 8542D032A-XXX

COLOR KEY	Configuration (DRIVERS SIDE ← FRONT → PASSENGER SIDE)	DRIVERS SIDE W/O ALLEY	DRIVERS SIDE WITH ALLEY	PASSENGER SIDE W/O ALLEY	PASSENGER SIDE WITH ALLEY
273	B→ B B B B | B B B B / B B B B | B B B B ←R	-02	-05		-138
274	R→ R R R R | C R R C / R R R R | C R R C ←R	-01	-04	-174	-247
275	R→ C R R R | R R R C / B R R R | R R R B ←R	-347	-348	-143	-142
276	B→ B B B A | B B B C / B B B A | B B B A ←B	-17	-14	-145	-146
277	R→ R R R R | C R R R / B R R R | C R R B ←R	-89	-91	-88	
278	B→ R B B B | B B B C / A B B B | B B B R ←B	-32	-34		-170
279	R→ B R R R | R R R B / R R R R | R R R B ←R	-89	-91	-07	-13
280	R→ C R R C | C R R C / C R R C | C R R C ←R	-174	-247	-174	-247
281	C→ C B B B | B B B C / R B B B | B B B R ←C	-349	-349	-350	-350
282	R→ R R R C | C B B B / R R R A | A B B B ←R		-351		-352
283	R→ R R R R | A A A R / A R R R | A A A A ←R	-19	-20	-353	
284	R→ R R R R | A A A A / R R R R | A A A A ←R	-01	-04	-354	
285	B→ C B B B | B B B C / A B B C | C B B A ←B	-355		-356	
286	R→ R R B R | B R B B / R R A R | B A B B ←B	-357		-358	
287	R→ C R R R | R R C R / C R R R | R R C R ←R		-265		-359
288	B→ B A A A | A A A B / B A A A | A A A B ←B	-360		-360	

NOTES:

1. WHEN ORDERING DOME ASSEMBLIES, SPECIFY: MODEL, PASSENGER OR DRIVERS SIDE, WITH OR WITHOUT ALLEY LIGHTS, AND PART NUMBER (8542D032A-XXX).
2. WHEN REQUESTING A DOME ASSEMBLY, OTHER THAN THE STANDARD VERSIONS SHOWN ON THIS SHEET, SUPPLY A SKETCH OF THE DESIRED DOME ASSEMBLY COLOR CONFIGURATION, SEND THE SKETCH TO THE ADDRESS SHOWN BELOW FOR CONFIRMATION OF AVAILABILITY.
3. AVAILABLE COLORS:

R	RED
B	BLUE
A	AMBER
C	CLEAR

FEDERAL SIGNAL CORPORATION
SIGNAL DIVISION
SERVICE DEPARTMENT
136th and WESTERN AVENUE
BLUE ISLAND, ILLINOIS 60406

290C10668-08
PPL 0130 MODEL 24
AeroDynic® DOME ASSEMBLIES
1 AUG 1981
SIGNAL DIVISION
Federal Signal Corporation

AeroDynic® DOME ASSEMBLIES

MODEL 24 STANDARD COLOR KEYS

PART NUMBER 8542D032A-XXX

Color Key	Drivers end	Drivers side (top / bottom)	FRONT	Passenger side (top / bottom)	Passenger end	Drivers Side W/O Alley	Drivers Side With Alley	Passenger Side W/O Alley	Passenger Side With Alley
289	B→	C B B B / A B B B		R R R C / R R R A	←R	-322		-127	-69
290	A→	A B R C / A B R C		C R B A / C R B A	←A	-361		-361	
291	B→	B B B C / A B B C		C B B C / C B B A	←B	-104	-190	-363	
292	R→	R R R C / A R R C		C B B C / C B B B	←C	-29	-28	-144	
293	B→	C B C A / C B C A		A C B C / A C B C	←B		-364		-364
294	B→	B R R C / B R R C		C R R C / C R R B	←B	-70	-48		-366
295	R→	R R B C / A R B C		C B R C / C B R A	←R		-367		-368
296	R→	C R R R / R R R R		C R R R / C R R R	←R	-86	-52	-06	-12
297	R→	R R R C / R R R C		C B B C / C B B R	←B	-06	-12		-202
298	B→	B B B C / B B B C		C R R C / C R R R	←R	-17	-14	-87	-53
299	B→	C R R R / A R R R		R R R C / R R R A	←B		-370		-371
300 (SAME AS COLOR KEY 244)	B→	B R R R / B R R R		R R R B / R R R B	←B	-310	-393	-310	-393
301	R→	A R R C / C A R C		C R R A / C R A C	←R	-374		-375	
302	B→	B B B C / R R R C		C R R R / C B B B	←B		-376		-376
303	R→	B R R R / A R R R		R R R B / R R R B	←R	-76	-78	-07	-13
304	C→	A R R R / R R R C		C R R A / R R R R	←C	-377	-377	-378	-378
305	R→	B R R R / A R R R		R R R A / R R R B	←R	-76	-78	-76	-78
306	R→	R B B B / C B B B		B B B C / B B B R	←R	-379		-379	
307	R→	R R R R / A R R R		B B B C / B B B A	←C	-19	-20	-59	-59
308	B→	B R R R / B R R R		B B B B / B B B B	←B		-380	-02	-05
309	A→	A A A B / A A A B		B A A A / B A A A	←A	-381		-381	
310	R→	R C R C / B R C R		C R C R / R C R B	←R		-382		-38
311	C→	B R R C / A R R C		C R R B / C R R A	←C	-384	-384	-385	-385
312	B→	A B A B / R B A B		B A B A / B A B R	←B	-386		-387	
313	R→	R R R C / A R R C		C B B C / C B B A	←R		-388		-389
314	R→	A A A A / R R R R		R R R C / A A A A	←R	-275		-390	
315	R→	C R R C / R R R R		C R R C / R R R R	←R	-391		-392	
316	C→	C C C C / C C C C		A A A A / A A A A	←A	-27	-27	-03	-21
317	B→	B B C B / B B C B		B C B B / B C B B	←B	-394		-394	
318	R→	C R C R / R C R C		R C R C / C R C R	←R		-395		-39
319	R→	C C R R / C R R R		B B C C / B B B C	←B	-398		-399	
320	B→	B B B B / C A B B		B B A C / B B A C	←B		-400		-400
321	R→	C A R R / R R R R		R R R R / R R A C	←R		-401		-401
322	B→	B C B C / A C B C		C B C B / C B C A	←B		-403		-404
323	R→	B B B C / R R R C		C B B B / C B B B	←B		-405	-17	-14
324	B→	B C B C / B C B C		C R C R / C R C R	←R	-327		-47	-63

NOTES:

1. WHEN ORDERING DOME ASSEMBLIES, SPECIFY: MODEL, PASSENGER OR DRIVERS SIDE, WITH OR WITHOUT ALLEY LIGHTS, AND PART NUMBER (8542 D032A-XXX).
2. WHEN REQUESTING A DOME ASSEMBLY, OTHER THAN THE STANDARD VERSIONS SHOWN ON THI[S] SHEET, SUPPLY A SKETCH OF THE DESIRED DOME ASSEMBLY COLOR CONFIGURATION, SEND THE SKETCH TO THE ADDRESS SHOWN BELOW FOR CONFIRMATION OF AVAILABILITY.
3. AVAILABLE COLORS:

Code	Color
R	RED
B	BLUE
A	AMBER
C	CLEAR

FEDERAL SIGNAL CORPORATION
SIGNAL DIVISION
SERVICE DEPARTMENT
136th and WESTERN AVENUE
BLUE ISLAND, ILLINOIS 60406

290C1066B-09

PPL 0130 MODEL 24

AeroDynic® DOME ASSEMBLIES 1 AUG 1981

SIGNAL DIVISION
Federal Signal Corporation

Aero Dynic® DOME ASSEMBLIES
MODEL 24
STANDARD COLOR KEYS

PART NUMBER 8542D032A-XXX

COLOR KEY	FRONT (DRIVERS SIDE / PASSENGER SIDE)	DRIVERS SIDE W/O ALLEY	DRIVERS SIDE WITH ALLEY	PASSENGER SIDE W/O ALLEY	PASSENGER SIDE WITH ALLEY
325	A→ A A A C / C A A A ←A R A A C / C A A R		-196		-195
326	R→ C C R R / C C R R ←R C C R R / C C R R	-406		-125	
327	C→ R C R C / C R C R ←C R C R C / C R C R	-407	-407	-407	-407
328					
329					
330					
331					
332					
333					
334					
335					
336					
337					
338					
339					
340					
341					
342					
343					
344					

Aero Dynic® DOME ASSEMBLIES
MODEL 24
STANDARD COLOR KEYS

PART NUMBER 8542D032A-XXX

COLOR KEY	FRONT (DRIVERS SIDE / PASSENGER SIDE)	DRIVERS SIDE W/O ALLEY	DRIVERS SIDE WITH ALLEY	PASSENGER SIDE W/O ALLEY	PASSENGER SIDE WITH ALLEY
345					
346					
347					
348					
349					
350					
351					
352					
353					
354					
355					
356					
357					
358					
359					
360					

NOTES:

1. WHEN ORDERING DOME ASSEMBLIES, SPECIFY: MODEL, PASSENGER OR DRIVERS SIDE, WITH OR WITHOUT ALLEY LIGHTS, AND PART NUMBER (8542D032A-XXX).
2. WHEN REQUESTING A DOME ASSEMBLY, OTHER THAN THE STANDARD VERSIONS SHOWN ON THIS SHEET, SUPPLY A SKETCH OF THE DESIRED DOME ASSEMBLY COLOR CONFIGURATION, SEND THE SKETCH TO THE ADDRESS SHOWN BELOW FOR CONFIRMATION OF AVAILABILITY.
3. AVAILABLE COLORS:

R	RED
B	BLUE
A	AMBER
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SERVICE DEPARTMENT
136th and WESTERN AVENUE
BLUE ISLAND, ILLINOIS 60406

290C1066B-10

PPL 0130 MODEL 24
Aero Dynic® DOME ASSEMBLIES

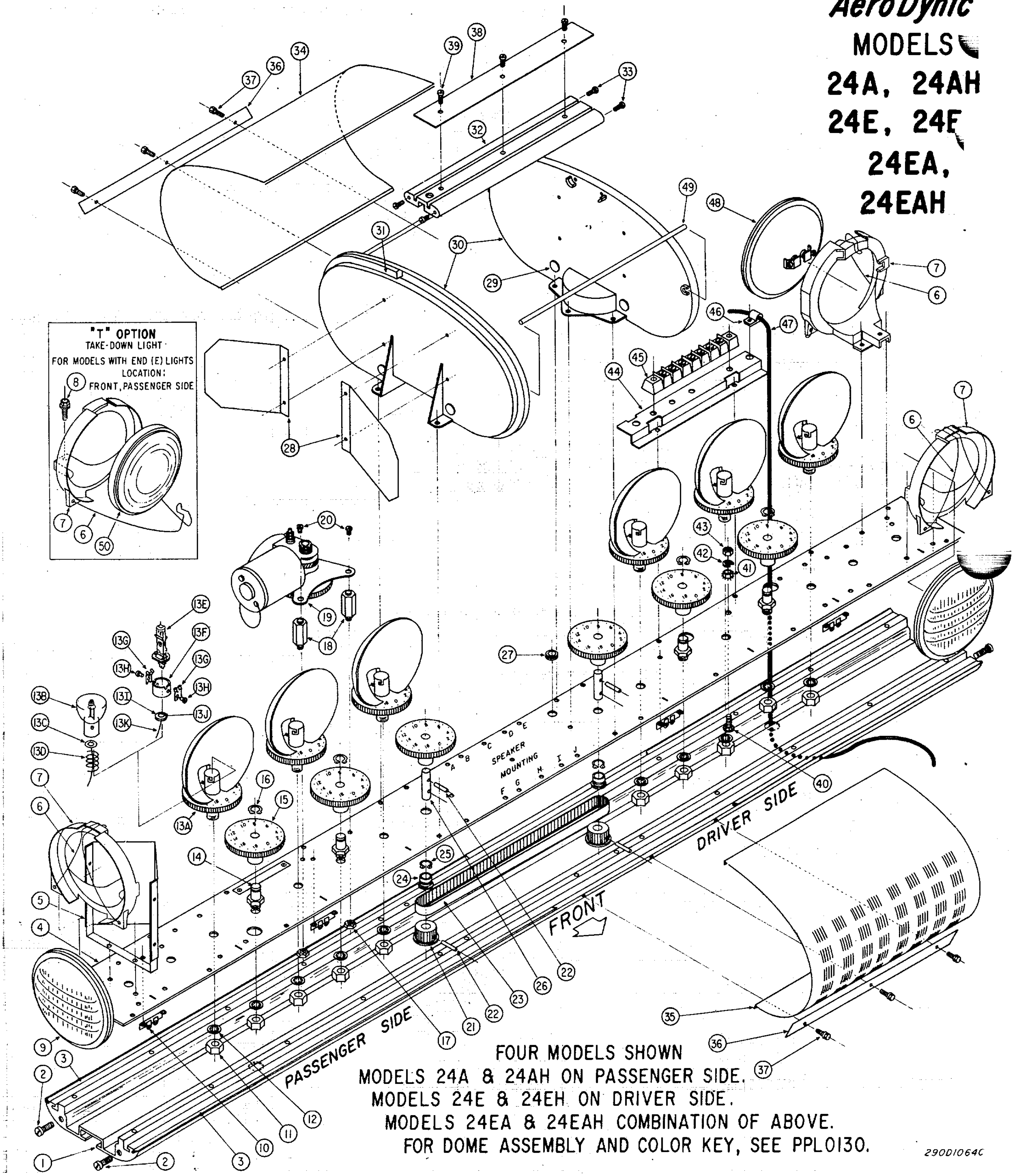
1 AUG 1981

SIGNAL DIVISION
Federal Signal Corporation

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AeroDynic®

MODELS 24A, 24AH 24E, 24E 24EA, 24EAH



FOUR MODELS SHOWN
MODELS 24A & 24AH ON PASSENGER SIDE.
MODELS 24E & 24EH ON DRIVER SIDE.
MODELS 24EA & 24EAH COMBINATION OF ABOVE.
FOR DOME ASSEMBLY AND COLOR KEY, SEE PPL0130.

29OD1064C

AeroDynic®

PPL 0128
PARTS LIST

MODELS 24A, 24AH, 24E, 24EH, 24EA, 24EAH
FOR DOME ASSEMBLY (and Color Key) SEE PPL 0130

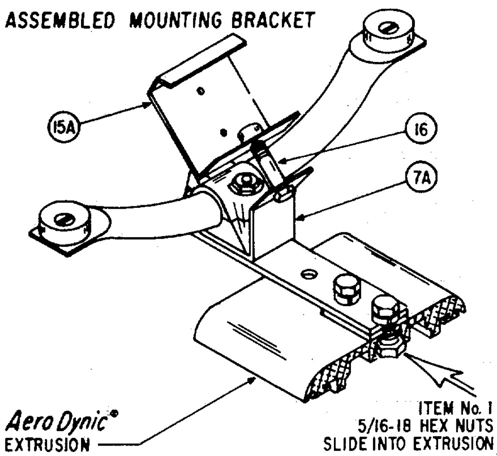
AUGUST 1981

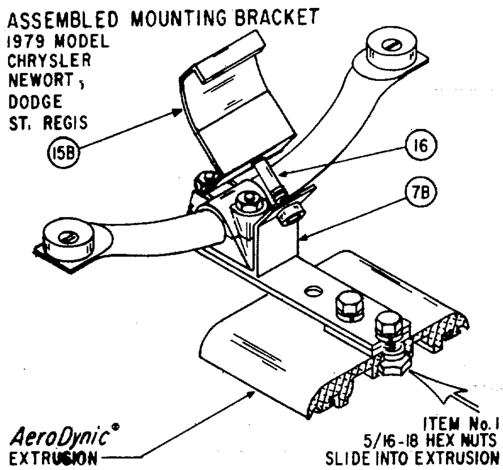
Item No.	Description	Part No.	MODEL 24 A	AH	E	EH	EA	EAH
1	Extrusion, Machined	8542D004-11	1	1	1	1	1	1
2	1/4-20 x 5/8 Screw Trs. Hd.	7000A457-10	4	4	4	4	4	4
3	Gasket, Dome	8542A006	4	4	4	4	4	4
4	Plate, Mounting	8542D040	1	1	1	1	1	1
5	Mirror Assembly	8542B093	2	2	0	0	0	0
6	Lamp Holder	8542D163	2	2	4	4	6	6
7	Clamp, Lamp	8542A166	2	2	4	4	6	6
8	8-32 x 3/4 Screw, Hex Wsh Hd, T Option	7011A110-24	0	0	1	1	1	1
9	Lamp, Alley (A) GE H7614 50W	8107A104	2	2	0	0	2	2
10	Terminal Strip	8542A055A	4	4	4	4	4	4
11	3/8-24 Nut, Hex.	7065A018A	10	10	10	10	10	10
12	Lockwasher	7075A032	10	10	10	10	10	10
13	Socket, Reflector and Lamp Assy.	8542B111	6	0	6	0	6	0
	Socket, Reflector and Lamp Assy.	8542B110	0	6	0	6	0	6
	Parts included in Item 13							
13A	Socket, and Reflector Assy.	8542B022	6	0	6	0	6	0
	Socket, and Reflector Assy.	8542B113	0	6	0	6	0	6
13B	Lamp, GE 1195	8440A108	6	0	6	0	6	0
13C	Lead Wire	8444A017-03	6	0	6	0	6	0
13D	Spring	8444A017-02	6	0	6	0	6	0
13E	Lamp, Halogen (H)	8440A265-01	0	6	0	6	0	6
13F	Bushing Adapter	8440A250	0	6	0	6	0	6
13G	Retainer Spring	8440A258	0	12	0	12	0	12
13H	8-32 x 3/16 Screw Pan Hd.	7011A104-03	0	12	0	12	0	12
13I	Insulator	8440A262	0	6	0	6	0	6
13J	Eyelet	8440A263	0	6	0	6	0	6
13K	Lead Wire	310A377	0	6	0	6	0	6
14	Hub Idler	8542A025B	4	4	4	4	4	4
15	Gear, Spur	8542B021	6	6	6	6	6	6
16	Ring, Retainer	8442A010	4	4	4	4	4	4
17	1/4-20 Nut, Ext. Keps	7058A005	2	2	2	2	2	2
18	Spacer	8542C071	2	2	2	2	2	2
19	Motor & Motor Bracket Assy.	8542C070	1	1	1	1	1	1
	Motor (separately)	8422B111-25	1	1	1	1	1	1
20	10-32 x 3/8 Screw Trs. Hd. Ext. Sems	7006A053-06	2	2	2	2	2	2
21	Pulley, Plastic	8542A059	2	2	2	2	2	2
22	Pin, Roll	7091A016	4	4	4	4	4	4
23	Belt, Timing	8542A014	1	1	1	1	1	1
24	Bearing	8542A054	2	2	2	2	2	2
25	Ring, Retaining	8542A061	2	2	2	2	2	2
26	Shaft, Pulley	8542A046	2	2	2	2	2	2
27	Grommet	8108A014	1	1	1	1	1	1
28	Mirror	8542A072	4	4	0	0	4	4
29	Plug, Hole	8542A096	4	4	4	4	4	4
30	Bulkhead	8542D007	2	2	2	2	2	2
31	Gasket, Bulkhead	8542A027	2	2	2	2	2	2
32	Extrusion Assy., Top	8542B023	1	1	1	1	1	1
33	8-32 x 3/8 Screw Pan Hd. Slt.	7000A401-06	4	4	4	4	4	4
34	Grille, Rear	8542D009	1	1	1	1	1	1
35	Grille, Front	8542D008	1	1	1	1	1	1
36	Grille, Clamp	8542B078	2	2	2	2	2	2
37	8-32 x 3/8 Screw Hex. Wsh. Hd.	7000A336-06	6	6	6	6	6	6
38	Plate, Cover	8542B016	1	1	1	1	1	1
39	10-32 x 3/8 Screw S. S. Trs. Hd. Slt.	7000A455-06	3	3	3	3	3	3
40	Ground Lug, Screw 10-32 x 5/8 Pan Hd. Ext. Sems	7006A004-10	1	1	1	1	1	1
41	10-32 Nut Hex. Ext. Sems	7058A004	1	1	1	1	1	1
42	#10 Lockwasher, Split	7074A009	1	1	1	1	1	1
43	10-32 Nut, Hex. Dbl. Chmf.	7059A014	1	1	1	1	1	1
44	Bracket, Terminal Strip	8542B091	1	1	1	1	1	1
45	Terminal Strip (5 Terminals)	8542A080-02	1	1	1	1	0	0
	Terminal Strip (7 Terminals)	8542A080-03	0	0	0	0	1	1
46	Cable Clamp	7011A027-04	1	1	1	1	1	1
47	Cable, Power (6 Conductor)	310A375	1	1	1	1	0	0
	Cable, Power (9 Conductor)	310A376	0	0	0	0	1	1
48	Lamp, End (E) PAR 4414	8107A102	0	0	4	4	4	4
49	Support, Bulkhead	8542A121	2	2	2	2	2	2
50	Lamp, T Option H7610	8107A106	0	0	1	1	1	1
Not	Gasket, Extrusion	8542A235	2	2	2	2	2	2
Shown	Gasket, End Cap, Dome Assy.	8542A234	2	2	2	2	2	2

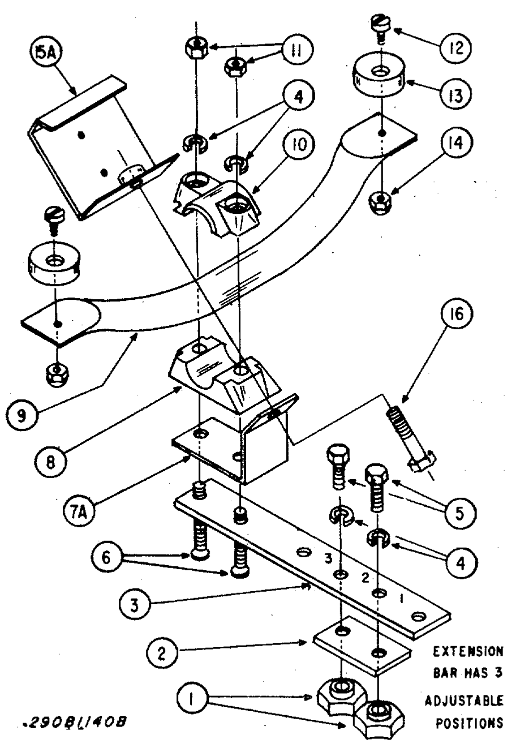
DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, description, and part number.
Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

Federal Signal Corporation
Signal Division
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SIGNAL DIVISION
Federal Signal Corporation

MODEL
24EBK*
AeroDynic®
EXTENSION BAR MOUNTING KIT

MODEL : 24EBK
Aerodynic® EXTENSION BAR KIT

PPL 0140
PARTS LIST

AUGUST 1981

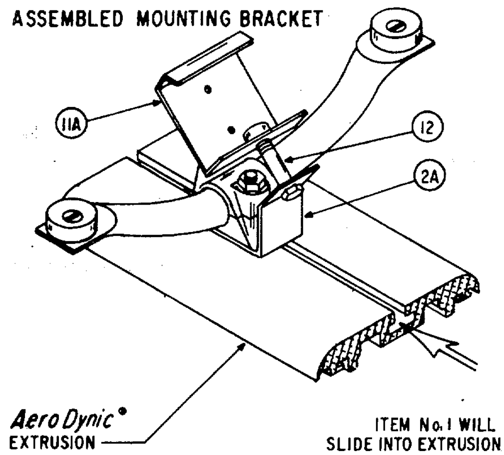
Item No.	Description	Part No.	Qty.
1	5/16-18 Nut, Hex	8542A134	4
2	Bar, Spacer	8542A151	2
3	Bar, Extension	8542B153	2
4	5/16 Lockwasher, S.S. Split	7074A020	8
5	5/16-18 x 7/8" Bolt, Hex Hd. S.S.	7002A005-14	4
6	5/16-18 x 2" Screw, Flt Hd. S.S.	7000A217-32	4
7A	Bracket, Adapter	8422A245-01	2AR
7B *	Bracket, Adapter Assembly	8542A368	
8	Clamp, Mounting Bracket Upper	8422C060-02	2
9	Bracket, Mounting	8422C049	2
10	Clamp, Mounting Bracket Lower	8422C060-01	2
11	5/16-18 Nut, S.S.	7057A027	4
12	1/4-20 x 1/2" Screw, Fill Hd. S.S.	8422A314	4
13	Bumper, Rubber	8422A249	4
14	1/4-20 Nut, Acorn	7054A010	4
15A	Hook Assembly	8422A285	2AR
15B *	Hook	8542B263	
16A	5/16-18 x 1-3/8" Bolt, Hex Hd.S.S.	7002A005-22	2AR
16B	5/16-18 x 2-1/2" Bolt, Hex Hd.S.S.	7002A005-40	
	(use one that best fits your vehicle)		
Not Shown *	Gasket (place between item 7B and vehicle roof.)	8470A146	2
*	Used on 1979 Models of Chrysler, Newport and Dodge, St. Regis.		

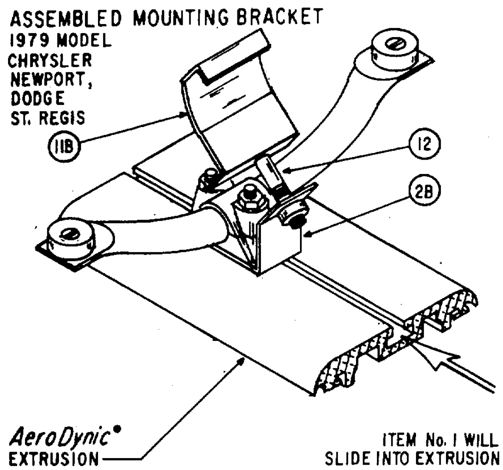
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Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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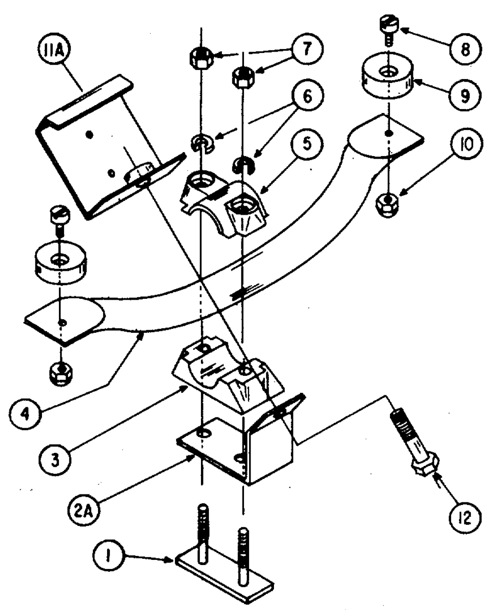
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Blue Island, Illinois 60406





SIGNAL DIVISION
Federal Signal Corporation

MODEL 24HK*2 *AeroDynic®* HOOK MOUNTING KIT



MODEL 24HK*2
AeroDynic® HOOK MOUNTING KIT

PPL 0133 AUGUST 1981
PARTS LIST

Item No.	Description	Part No.	Qty.
1	Mounting Plate Assembly	8542A057	2
2A	Bracket, Adapter	8422A245-01	2AR
2B *	Bracket, Adapter Assembly	8542A368	
3	Clamp, Mounting Bracket Upper	8422C060-02	2
4	Bracket, Mounting	8422C049	2
5	Clamp, Mounting Bracket Lower	8422C060-01	2
6	5/16 Lockwasher, S.S. Split	7074A020	4
7	5/16-18 Nut, Hex. S.S.	7057A027	4
8	1/4-20 x 1/2" Screw, Fill. Hd. S.S.	8422A314	4
9	Bumber, Rubber	8422A249	4
10	1/4-20 Nut, Acorn	7054A010	4
11A	Hook Assembly	8422A285	2AR
11B *	Hook	8542B263	
12A	5/16-18 x 1-3/8 Bolt, Hex. Hd. S.S.	7002A005-22	2AR
12B	5/16-18 x 2-1/2 Bolt, Hex. Hd. S.S. (use one that best fits your vehicle)	7002A005-40	
Not Shown *	Gasket (place between item 2B and vehicle roof.)	8470A146	2
*	Used on 1979 Models of Chrysler, Newport and Dodge, St. Regis.		

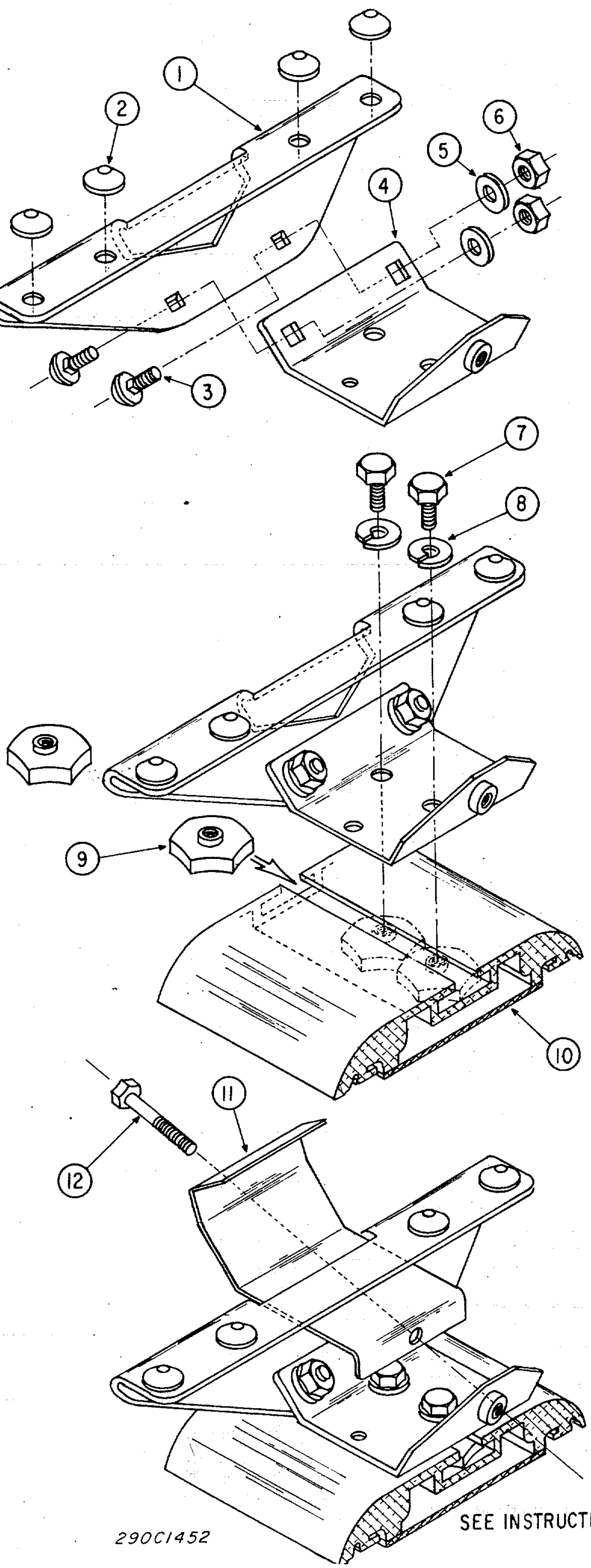
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Give model, description, and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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290B/133B

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SIGNAL DIVISION
Federal Signal Corporation

MODEL 24HK*3
AeroDynic®
HOOK-ON MOUNTING KIT

24HK*3 HOOK-ON MOUNTING KIT
AeroDynic® Models 24 and 25

PPL 0155
PARTS LIST

AUGUST 1981

Item No.	Description	Part No.	Qty.
1	Mounting Bracket	8542C285	2
2	Rubber Bumper	8542A146	8
3	5/16-18 x 3/4 SS Carriage Bolt	7017A023-12	4
4	Mounting Adapter	8542A300	2
5	5/16 Flat SS Washer	7072A031	4
6	5/16-18 SS Hex Nuts	7057A027	4
7	5/16-18 x 1/2 SS Hex Hd. Cap Screw	7002A005-08	4
8	5/16 Split SS Lockwasher	7074A020	4
9	5/16-18 Hex Nut-Clamp	8542A134	4
10	AeroDynic Light Assembly Model 24, or 25		
11	Hook	8542B283	2
12	5/16-18 x 1-3/4 * 5/16-18 x 2-1/2 * SS Adjustment Bolt	7002A005-28 7002A005-40	2 2
Not Shown	Instruction Sheet	256A390	1
	* Both are supplied, use lenght that best fits your vehicle.		

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, description, and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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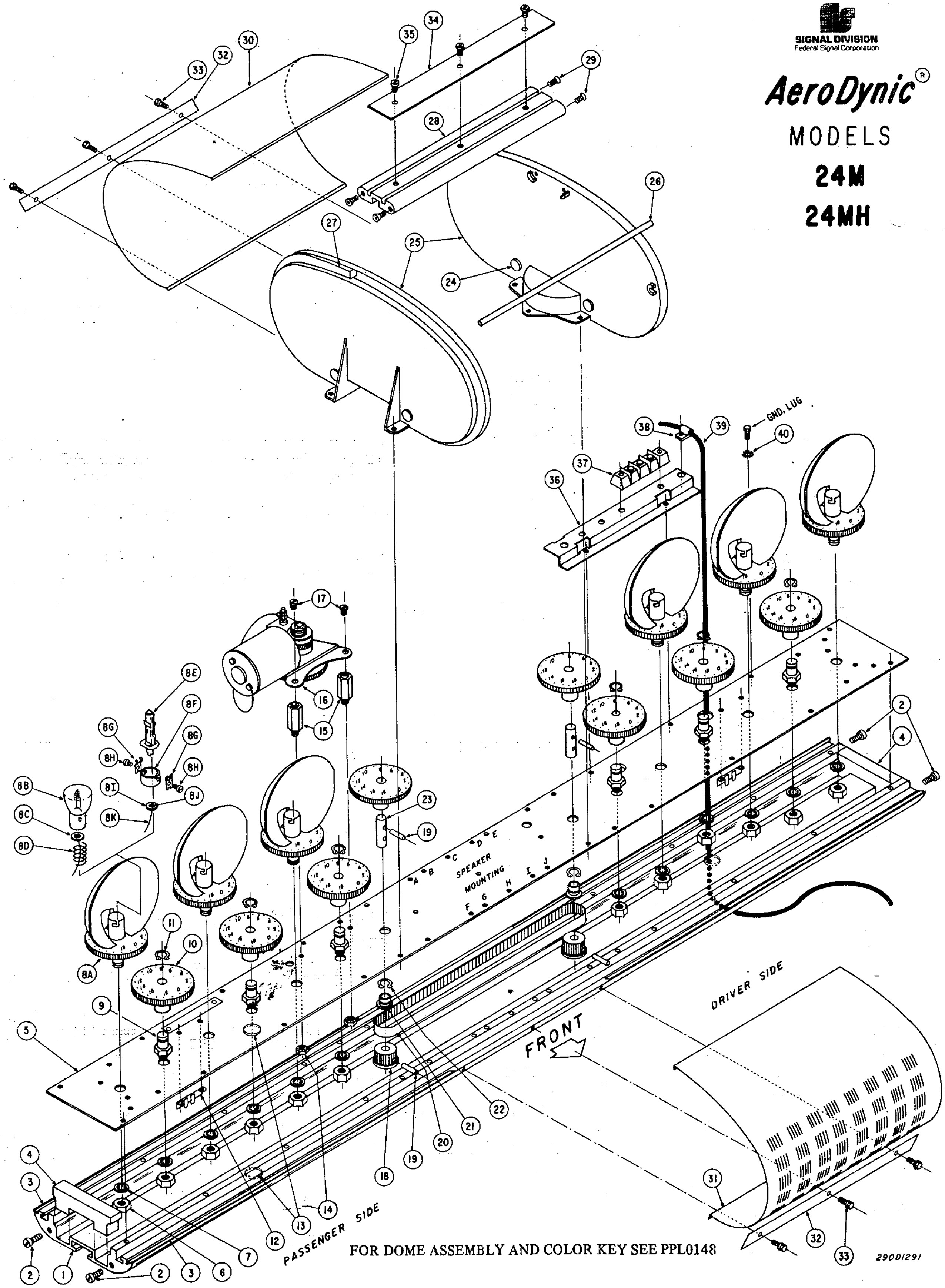
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SEE INSTRUCTION SHEET 256A390 BEFORE ASSEMBLY OF ITEMS 11 AND 12

SIGNAL DIVISION
Federal Signal Corporation

AeroDynic®

MODELS
24M
24MH



FOR DOME ASSEMBLY AND COLOR KEY SEE PPL0148

AeroDynic ®

PPL 0146
PARTS LIST

MODELS : 24M, and 24MH
FOR DOME ASSEMBLY (and Color Key) SEE PPL 0148

AUGUST 1981

Item No.	Description	Part No.	MODEL 24M	MODEL 24MH
1	Extrusion	8542D004-15	1	1
2	1/4-20 x 5/8 Screw Trs. Hd.	7000A457-10	4	4
3	Gasket, Dome	8542A006	4	4
4	Gasket, Extrusion	8542A235	2	2
5	Plate, Mounting	8542D216	1	1
6	3/8-24 Nut, Hex	7065A018A	10	10
7	Lockwasher	7075A032	10	10
8	Socket, Reflector and Lamp Assembly	8542B111	6	0
	Socket, Reflector and Lamp Assembly	8542B110	0	6
	Parts included in item 8			
8A	Socket, and Reflector Assembly	8452B022	6	0
	Socket, and Reflector Assembly	8452B113	0	6
8B	Lamp, GE 1195	8440A108	6	0
8C	Lead Wire	8444A017-03	6	0
8D	Spring	8444A017-02	6	0
8E	Lamp, Halogen (H)	8440A265-01	0	6
8F	Bushing, Adapter	8440A250	0	6
8G	Retainer, Spring	8440A258	0	12
8H	8-32 x 3/16 Screw, Pan Hd.	7011A104-03	0	12
8I	Insulator	8440A262	0	6
8J	Eyelet	8440A263	0	6
8K	Lead Wire	310A377	0	6
9	Hub, Idler	8542A025B	6	6
10	Gear, Spur	8542B021	8	8
11	Ring, Retainer	8422A010	6	6
12	Terminal Strip	8542A055A	2	2
13	Plug, Hole	8542A102	2	2
14	1/4-20 Nut, Ext. Keps	7058A005	2	2
15	Spacer	8542C071	2	2
16	Motor & Motor Bracket Assembly	8542C070	1	1
	Motor (seperately)	8422B111-25	1	1
17	10-32 x 3/8 Screw, Trs. Hd. Sems	7006A053-06	2	2
18	Pulley, Plastic	8542A059	2	2
19	Pin, Roll	7091A016	4	4
20	Belt, Timing	8542A014	1	1
21	Bearing	8542A054	2	2
22	Ring, Retaining	8542A061	2	2
23	Shaft, Pulley	8542A046	2	2
24	Plug, Hole	8542A096	4	4
25	Bulkhead	8542D007-01	2	2
26	Support, Bulkhead	8542A121	2	2
27	Gasket, Bulkhead	8542A027	2	2
28	Extrusion Assembly, Top	8542B023	1	1
29	8-32 x 3/8 Screw, Flt. Hd. Phil.	7000A254A-06	4	4
30	Grille, Rear	8542D009	1	1
31	Grille, Front	8542D008	1	1
32	Grille, Clamp	8542B078	2	2
33	8-32 x 3/8 Screw, Hex. Wsh. Hd.	7000A336-06	6	6
34	Plate, Cover	8542B016	1	1
35	10-32 x 3/8 Screw, S.S. Trs. Hd. Slt.	7000A455-06	3	3
36	Bracket, Terminal Strip	8542B091	1	1
37	Terminal Strip (3 terminals)	8542A080-01	1	1
38	Cable Clamp	7011A027-04	1	1
39	Cable, Power (4 conductor)	310A374	1	1
40	Lockwasher, Ext. Th. No. 8 (use under ground lug)	7075A025	1	1
Not Shown	Gasket, End Cap, Dome Assy.	8542A234	2	2

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, description, and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

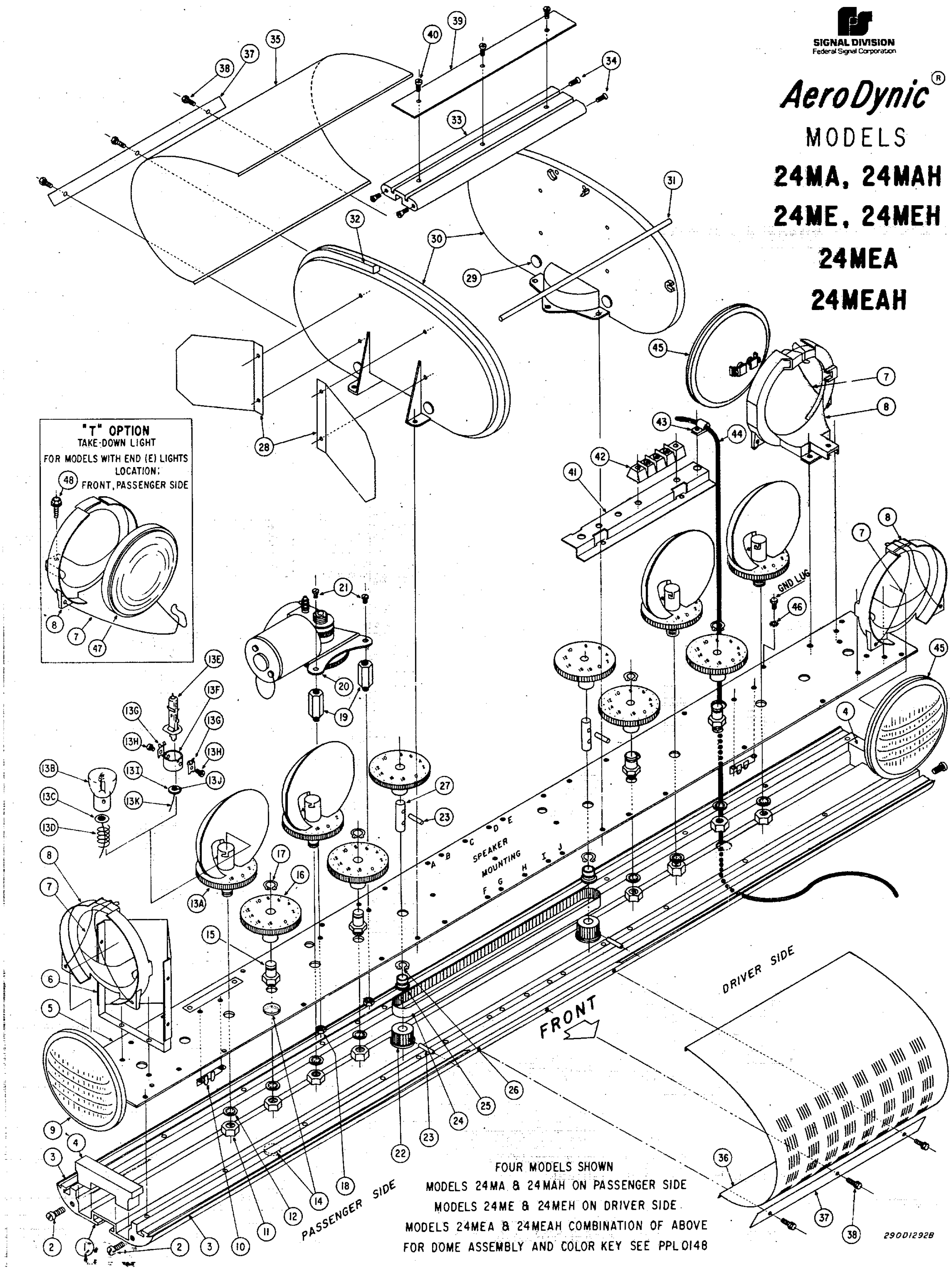
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Blue Island, Illinois 60506

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SIGNAL DIVISION
Federal Signal Corporation

AeroDynic®

MODELS
24MA, 24MAH
24ME, 24MEH
24MEA
24MEAH



FOUR MODELS SHOWN
MODELS 24MA & 24MAH ON PASSENGER SIDE
MODELS 24ME & 24MEH ON DRIVER SIDE
MODELS 24MEA & 24MEAH COMBINATION OF ABOVE
FOR DOME ASSEMBLY AND COLOR KEY SEE PPL 0148

AeroDynic®

PPL 0147
PARTS LIST

MODELS : 24MA, 24MAH, 24ME, 24MEH, 24MEA, 24MEAH
FOR DOME ASSEMBLY (and Color Key) SEE PPL 0148

AUGUST 1981

Item No.	Description	Part No.	MODEL 24M A	AH	E	EH	EA	EAH
1	Extrusion	8542D004-15	1	1	1	1	1	1
2	1/4-20 x 5/8 Screw Trs. Hd.	7000A457-10	4	4	4	4	4	4
3	Gasket, Dome	8542A006	4	4	4	4	4	4
4	Gasket, Extrusion End	8542A235	2	2	2	2	2	2
5	Plate, Mounting	8542D216	1	1	1	1	1	1
6	Mirror Assembly	8542B093	2	2	0	0	0	0
7	Clamp, Lamp	8542A166	2	2	4	4	6	6
8	Lamp Holder	8542D163	2	2	4	4	6	6
9	Lamp, Alley (A) GE H7614 50W	8107A104	2	2	0	0	2	2
10	Terminal Strip	8542A055A	2	2	2	2	2	2
11	3/8-24 Nut, Hex.	7065A018A	8	8	8	8	8	8
12	Lockwasher	7075A032	8	8	8	8	8	8
13	Socket, Reflector and Lamp Assembly	8542B111	4	0	4	0	4	0
	Socket, Reflector and Lamp Assembly	8542B110	0	4	0	4	0	4
	Parts included in item 13							
13A	Socket, and Reflector Assembly	8542B022	4	0	4	0	4	0
	Socket, and Reflector Assembly	8542B113	0	4	0	4	0	4
13B	Lamp, GE 1195	8440A108	4	0	4	0	4	0
13C	Lead Wire	8444A017-03	4	0	4	0	4	0
13D	Spring	8444A017-02	4	0	4	0	4	0
13E	Lamp, Halogen (H)	8440A265-01	0	4	0	4	0	4
13F	Bushing Adapter	8440A250	0	4	0	4	0	4
13G	Retainer Spring	8440A258	0	8	0	8	0	8
13H	8-32 x 3/16 Screw, Pan Hd.	7011A104-03	0	8	0	8	0	8
13I	Insulator	8440A262	0	4	0	4	0	4
13J	Eyelet	8440A263	0	4	0	4	0	4
13K	Lead Wire	310A377	0	4	0	4	0	4
14	Plug, Hole	8542A102	2	2	2	2	2	2
15	Hub, Idler	8542A025B	4	4	4	4	4	4
16	Gear, Spur	8542B021	6	6	6	6	6	6
17	Ring, Retainer	8422A010	4	4	4	4	4	4
18	1/4-20 Nut, Ext. Keps	7058A005	2	2	2	2	2	2
19	Spacer	8542C071	2	2	2	2	2	2
20	Motor & Motor Bracket Assembly	8542C070	1	1	1	1	1	1
	Motor (seperately)	8422B111-25	1	1	1	1	1	1
21	10-32 x 3/8 Screw, Trs. Hd. Ext. Sems	7006A053-06	2	2	2	2	2	2
22	Pulley, Plastic	8542A059	2	2	2	2	2	2
23	Pin, Roll	7091A016	4	4	4	4	4	4
24	Belt, Timing	8542A014	1	1	1	1	1	1
25	Bearing	8542A054	2	2	2	2	2	2
26	Ring, Retaining	8542A061	2	2	2	2	2	2
27	Shaft, Pulley	8542A046	2	2	2	2	2	2
28	Mirror	8542A072	4	4	0	0	4	4
29	Plug, Hole	8542A096	4	4	4	4	4	4
30	Bulkhead	8542D007	0	0	2	2	0	0
	Bulkhead	8542D007-01	2	2	0	0	2	2
31	Support, Bulkhead	8542A121	2	2	2	2	2	2
32	Gasket, Bulkhead	8542A027	2	2	2	2	2	2
33	Extrusion Assembly, Top	8542B023	1	1	1	1	1	1
34	8-32 x 3/8 Screw, Flt. Hd. Phil.	7000A254-06	4	4	4	4	4	4
35	Grille, Rear	8542D009	1	1	1	1	1	1
36	Grille, Front	8542D008	1	1	1	1	1	1
37	Grille, Clamp	8542B078	2	2	2	2	2	2
38	8-32 x 3/8 Screw, Hex. Wsh. Hd.	7000A336-06	6	6	6	6	6	6
39	Plate Cover	8542B016	1	1	1	1	1	1
40	10-32 x 3/8 Screw .S.S. Trs. Hd. Slt.	7000A455-06	3	3	3	3	3	3
41	Bracket, Terminal Strip	8542B091	1	1	1	1	1	1
42	Terminal Strip (7 terminals)	8542A080-03	1	1	1	1	0	0
	Terminal Strip (5 terminals)	8542A080-02	0	0	0	0	1	1
43	Cable Clamp	7011A027-04	1	1	1	1	1	1
44	Cable, Power (6 conductor)	310A375	1	1	1	1	0	0
	Cable, Power (9 conductor)	310A376	0	0	0	0	1	1
45	Lamp, End (E) PAR4414	8107A102	0	0	4	4	4	4
46	Lockwasher, Ext. Th. No. 8	7075A025	1	1	1	1	1	1
	(used under ground lug)							
47	Lamp, T Option, H7610	8107A106	0	0	1	1	1	1
Not Shown	Gasket, End Cap, Dome Assy.	8542A234	2	2	2	2	2	2

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, description, and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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AeroDynic® DOME ASSEMBLIES
MODEL 24M
STANDARD COLOR KEYS

PART NUMBER 8542D217-XX

COLOR KEY	Drivers side (input)	FRONT: top row (drivers | passenger)	bottom row (drivers | passenger)	Passenger side (input)	DRIVERS SIDE W/O ALLEY	DRIVERS SIDE WITH ALLEY	PASSENGER SIDE W/O ALLEY	PASSENGER SIDE WITH ALLEY
1	R	R R R R | R R R R	R R R R | R R R R	R	-01	-04	-01	-04
2	B	B B B B | B B B B	B B B B | B B B B	B	-02	-05	-02	-05
3	A	A A A A | A A A A	A A A A | A A A A	A	-03	-06	-03	-06
4	R	R R R R | B B B B	R R R R | B B B B	B	-01	-04	-02	-05
5	R	B R R R | R R R B	A R R R | R R R A	R		-07		-08
6	R	R R R C | C B B B	R R R C | C B B B	B	-09	-11	-10	-12
7	R	R R R R | R R R R	A R R R | R R R A	R	-16	-19	-15	-21
8	B	B B B B | B B B B	A B B B | B B B A	B	-62	-14	-25	-13
9	R	R R R C | C R R R	A R R C | C R R A	R	-17	-23	-18	-101
10	R	R R R R | B B B C	A R R R | B B B A	B	-16	-19		-20
11	B	B B B B | R R R R	A B B B | R R R A	R	-62	-14	-15	-21
12	R	B R R R | R R R B	B R R R | R R R B	R	-38	-22	-38	-22
13	R	R R R C | C B B B	A R R C | C B B A	B	-17	-23		-24
14	B	B B B C | C B B B	B B B C | C B B B	B	-10	-56 -12	-10	-56 -12
15	R	R R R R | B B B B	A R R R | B B B A	B	-16	-19	-25	-13
16	B	B B B B | R R R R	B B B B | R R R R	R	-02	-05	-01	-04
17	R	R R R R | R R R R	B R R R | R R R B	R		-26		-27
18	R	R R R C | C R R R	R R R C | C R R R	R	-09	-11	-09	-11
19	R	R R R R | R R R C	R R R R | R R R R	R	-01	-04	-28	-29
20	B	B B B B | B B B C	B B B B | B B B B	B	-02	-05	-30	-31

COLOR KEY	Drivers side (input)	FRONT: top row (drivers | passenger)	bottom row (drivers | passenger)	Passenger side (input)	DRIVERS SIDE W/O ALLEY	DRIVERS SIDE WITH ALLEY	PASSENGER SIDE W/O ALLEY	PASSENGER SIDE WITH ALLEY
21	A	A A A A | A A A C	A A A A | A A A A	A	-03	-06	-32	-33
22	R	R R R R | B B B C	R R R R | B B B B	B	-01	-04	-30	-[illegible]
23	R	R R C C | C C R C	R R C C | C C R R	R	-34	-36	-35	-37
24	R	B R R R | R R R C	B R R R | R R R B	R	-38	-22	-39	-40
25	R	R R R R | A A A C	R R R R | A A A A	A	-01	-04	-32	-33
26	B	B B C C | C C B C	B B C C | C C B B	B	-41	-43	-42	-44
27	R	R R C C | C C B C	R R C C | C C B B	B	-34	-36	-42	-44
28	R	R R R C | C R R C	R R R C | C R R R	R	-09	-11	-45	
29	R	R R R C | C R R R	A R R C | C R R R	R	-17	-23	-09	-11
30	R	R R R R | B B B B	A R R R | B B B B	B	-16	-19	-02	-[illegible]
31	R	R R R C | C B B B	A R R R | B B B A	B		-46		-47
32	R	A R R R | R R R A	A R R R | R R R A	R	-61	-48	-61	-48
33	B	R R R R | B B B B	R R R R | B B B B	R	-49		-50	
34	R	R R R R | B B B R	A R R R | B B B A	B	-16	-19	-51	-96
35	B	B B B B | B B B B	R B B B | B B B R	B	-52	-66	-53	-67
36	C	R C R R | C C R B	R C R R | C C R B	C	-54	-54	-55	-55

NOTES:

1. WHEN ORDERING DOME ASSEMBLIES, SPECIFY: MODEL, PASSENGER OR DRIVERS SIDE, WITH OR WITHOUT ALLEY LIGHTS, AND PART NUMBER (8542 D217-XX)
2. WHEN REQUESTING A DOME ASSEMBLY, OTHER THAN THE STANDARD VERSIONS SHOWN ON THIS SHEET, SUPPLY A SKETCH OF THE DESIRED DOME ASSEMBLY COLOR CONFIGURATION, SEND THE SKETCH TO THE ADDRESS SHOWN BELOW FOR CONFIRMATION OF AVAILABILITY.
3. AVAILABLE COLORS:

R	RED
B	BLUE
A	AMBER
C	CLEAR

FEDERAL SIGNAL CORPORATION
SIGNAL DIVISION
SERVICE DEPARTMENT
136th and WESTERN AVENUE
BLUE ISLAND, ILLINOIS 60406

290C1295-01

PPL 0148 MODEL 24M
Medium AeroDynic® DOME ASSEMBLIES 1 AUG 1981

SIGNAL DIVISION
Federal Signal Corporation

AeroDynic®
DOME ASSEMBLIES
MODEL 24M
STANDARD COLOR KEYS

PART NUMBER 8542D217-XX

(Lamp layouts: FRONT at top; top row and bottom row each read left to right, 4 lamps either side of the center; arrows show the drivers side (left) and passenger side (right) colors.)

COLOR KEY	DRIVERS SIDE	FRONT (top row)	(bottom row)	PASSENGER SIDE	DRIVERS SIDE W/O ALLEY	DRIVERS SIDE WITH ALLEY	PASSENGER SIDE W/O ALLEY	PASSENGER SIDE WITH ALLEY
37	R→	C R R R / R R R C	A R R R / R R R A	←R	-57		-58	
38	R→	C R R C / C R R C	R R R C / C R R R	←R		-59		-60
39	R→	R R C C / C C R A	A R C C / C C R R	←R	-63		-63	
40	B→	B C R R / R R C B	B C R R / R R C B	←B		-64		-64
41	R→	A R R C / C R R A	A R R C / C R R A	←R	-65		-65	
42	R→	R C R C / C R C R	R C R C / C R C R	←R	-68	-140	-68	-140
43	B→	C B B B / B B B C	B B B B / B B B B	←B		-69	-30	-31
44	B→	B B B C / C R R R	B B B C / C R R R	←R	-10	-12	-09	-11
5	B→	B B B C / C B B C	A B B C / C B B A	←B		-70		-71
46	A→	A B B B / B B B A	A B B B / B B B A	←A	-72		-72	
47	B→	B R R R / B B B C	B R R R / B B B C	←B		-73		-74
48	C→	C R C R / R C R C	C R C R / R C R C	←C	-75	-75	-75	-75
49	R→	R R R R / B B B B	A R C C / C C B A	←B		-76		-77
50	R→	R R C C / C C R R	A R C C / C C R A	←R	-63	-123	-78	-124
51	B→	R B B B / R R R B	A B B B / R R R A	←R	-99	-79		-08
52	R→	R R R C / C B B C	R R R C / C B B B	←B	-09	-11	-30	-86
53	R→	R R R C / C R R C	R R R C / C R R R	←R	-09	-11		-60
54	A→	A A A C / C A A C	A A A C / C A A A	←A	-97	-80	-98	-81
55	R→	R B C C / C C B R	A B R R / R R B A	←R		-82		-83
56	B→	B B B C / C B B B	A B B C / C B B C	←B	-84		-85	

AeroDynic®
DOME ASSEMBLIES
MODEL 24M
STANDARD COLOR KEYS

PART NUMBER 8542D217-XX

COLOR KEY	DRIVERS SIDE	FRONT (top row)	(bottom row)	PASSENGER SIDE	DRIVERS SIDE W/O ALLEY	DRIVERS SIDE WITH ALLEY	PASSENGER SIDE W/O ALLEY	PASSENGER SIDE WITH ALLEY
57	R→	R B B B / B B B C	R B B B / B B B R	←R		-87		-88
58	R→	R C R C / C R C R	A C R C / C R C A	←R		-89		-90
59	R→	C R R R / B B B C	C R R R / B B B C	←B	-91		-92	
60	R→	A R R R / R R R A	R R R R / R R R R	←R	-15	-21	-16	-19
61	R→	R R C C / C C B B	A R R R / B B B A	←B	-93		-94	
62	B→	B R C C / C C R B	B R C C / C C R B	←B		-95		-95
63	B→	R B B B / B B B R	A B B B / B B B A	←B	-99	-79	-51	-96
64	B→	B B B B / C C C C	B B B B / C C C C	←C	-02	-05	-100	-100
65	R→	R R R R / B B B C	R R R R / B B B R	←R	-01	-04		-88
66	R→	C R R R / B B B C	R R R R / B B B B	←B		-102		-31
67	R→	R R B C / C B R C	A R B C / C B R A	←R		-103		-104
68	R→	A R B B / C C B R	R B C C / B B R A	←R	-105		-105	
69	B→	C B B B / B B B C	A B B B / B B B A	←B		-106		-20
70	R→	B B R C / C R B B	B B R C / C R B B	←R	-107		-107	
71	B→	B B B B / B B B R	R B B B / B B B B	←B	-108		-108	
72	R→	C R R R / R R R C	R R R R / R R R R	←R		-109		-29

NOTES:

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3. AVAILABLE COLORS:

R	RED
B	BLUE
A	AMBER
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FEDERAL SIGNAL CORPORATION
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136th and WESTERN AVENUE
BLUE ISLAND, ILLINOIS 60406

290C1295-02

PPL 0148 MODEL 24M

Medium AeroDynic® DOME ASSEMBLIES 1 AUG 1981

SIGNAL DIVISION
Federal Signal Corporation

Aero Dynic® DOME ASSEMBLIES MODEL 24M STANDARD COLOR KEYS

PART NUMBER 8542D217-XX

COLOR KEY	Driver side → (FRONT row)	Second row ← Passenger side	Drivers Side W/O Alley	Drivers Side With Alley	Passenger Side W/O Alley	Passenger Side With Alley
73	R→ A B R R / R R B C	C B R R / R R B A ←R	-110		-110	
74	R→ B B R R / R R B A	A B R R / R R B B ←R	-111		-111	
75	R→ R R C C / C C R R	R R C C / C C R R ←R	-34	-36	-34	-36
76	B→ R B B B / B B B C	R B B B / B B B R ←B		-112		-113
77	A→ C A A A / A A A C	A A A A / A A A A ←A		-114	-32	-33
78	A→ C A A A / A A A C	R A A A / A A A R ←A		-115		-116
79	A→ R A A A / A A A R	R A A A / A A A R ←A	-117		-117	
80	B→ B B C C / C C B B	B B C C / C C B B ←B	-41	-43	-41	-43
81	A→ A A A A / A A A A	R A A A / A A A R ←A	-121		-122	
82	R→ R R R R / R R R C	A R R R / R R R A ←R	-16	-19	-58	
83	R→ R R R R / C R R C	A R R R / C R R R ←R	-16	-19	-45	
84	R→ R R R B / C R R R	A R R B / C R R A ←R	-120		-18	
85	R→ R R C C / C C R R	A R C C / C C R R ←R		-123	-34	-36
86	R→ R R B B / B B R R	R R B B / B B R R ←R		-125		-125
87	B→ B B C C / C C R R	A B B B / R R R A ←R		-126		-127
88	R→ R R C R / B C B B	A R R R / B B B A ←B		-128		-129
89	B→ B B B C / C B B C	B B B C / C B B B ←B	-10	-56 -12	-158	-86
90	R→ R R R C / C B B C	B B B C / C R R R ←R		-130		-131
91	R→ B R R C / C R R B	B R R C / C R R B ←R		-132		-132
92	A→ A A A A / A A A A	C A A A / A A A C ←A	-32	-33		-114

Aero Dynic® DOME ASSEMBLIES MODEL 24M STANDARD COLOR KEYS

PART NUMBER 8542D217-XX

COLOR KEY	Driver side → (FRONT row)	Second row ← Passenger side	Drivers Side W/O Alley	Drivers Side With Alley	Passenger Side W/O Alley	Passenger Side With Alley
93	B→ B B B C / C B B B	A B B B / B B B A ←B		-133		-47
94	R→ R R R C / C R R R	A R R R / R R R A ←R		-46		[illegible]
95	R→ C R R C / C R R C	A R R R / R R R A ←R		-135		-136
96	R→ R C R C / C R R C	R C R C / C R C R ←R		-137		-138
97	B→ B B B C / C R R R	B B B C / C R R R ←R		-56	-09	-11
98	R→ R R C R / R C R R	R R C R / R C R R ←R	-139		-139	
99	B→ C B C C / C C B C	B B B C / C B B B ←B	-141		-142	
100	B→ B B B C / C B B B	A B B C / C B B A ←B	-84		-143	
101	B→ A B B C / C B B A	A B B C / C B B A ←B		-144		-144
102	R→ R R R R / A A A A	R R R R / A A A A ←A	-01	-04	-03	
103	A→ A A B A / A B A C	A A B A / A B A A ←A		-145		-146
104	B→ R B B B / C B B B	R B B B / C B B B ←B		-112	-10	-12
105	R← R R R R / R R R R	R R A R / R R R R →R	-149		-01	-04
106	R→ R R R B / B R R R	R R R B / B R R R ←R	-150		-150	
107	B→ B B C C / C C B C	B B B C / C B B B ←B		-147		-148
108	R→ R R R C / C R R C	A R R C / C R R A ←R	-17	-23		-153

NOTES:

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3. AVAILABLE COLORS:

R	RED
B	BLUE
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FEDERAL SIGNAL CORPORATION
SIGNAL DIVISION
SERVICE DEPARTMENT
136th and WESTERN AVENUE
BLUE ISLAND, ILLINOIS 60406

290C1295-03

PPL 0148 MODEL 24M
Medium AeroDynic® DOME ASSEMBLIES 1 AUG 1981

SIGNAL DIVISION Federal Signal Corporation

AeroDynic® DOME ASSEMBLIES MODEL 24M STANDARD COLOR KEYS

PART NUMBER 8542D217-XX

COLOR KEY	DRIVERS SIDE	FRONT (upper row)	Lower row	PASSENGER SIDE	DRIVERS SIDE W/O ALLEY	DRIVERS SIDE WITH ALLEY	PASSENGER SIDE W/O ALLEY	PASSENGER SIDE WITH ALLEY
109	B	A B B C | C B B A	A B B B | B B B A	B		-154		-155
110	A	C A A A | A A A C	C A A A | A A A C	A	-156		-156	
111	B	B R R R | R R R B	B R R R | R R R B	B	-73		-73	
112	R	R R R R | B B B B	R R A R | B B B B	B	-149		-02	-05
113	B	B R R C | C R R B	B R R C | C R R B	B		-157		-157
114	R	R R R R | B B B R	R R R R | B B B R	R	-01	-04		-87
115	A	A A A C | C A A A	A A A C | C A A A	A	-97	-80	-97	-80
116	C	C C C C | C C C C	C C C C | C C C C	C	-100	-100	-100	-100
117	B	A R R R | B B B A	B A A A | A A A B	B		-160		-161
118	R	A R C C | C C R C	A R C C | C C R A	R		-162		-163
119	R	R R C R | R C R R	R R C R | R C R R	R		-164		-164
120	B	B B C B | B C B B	B B C B | B C B B	B		-165		-165
121	B	B B C B | B C B C	C B C B | B C B C	B		-166		-166
122	R	R R C R | R C R C	C R C R | R C R R	R		-167		-167
123	C	C B B B | B B B C	C B B B | B B B C	C	-168	-168	-168	-168
124	R	R R R R | R R R R	A R R R | R R R R	R	-16	-19	-01	-04
125	R	R C R R | R R C R	R C A A | A A C R	R	-171		-172	
126	C	R R R R | B B B C	A R R R | B B B A	C	-169	-169	-170	-170
127	C	C C R R | R R C C	C C A A | A A C C	C	-173	-173	-174	-174
128	R	C R R R | B B B C	A R R R | B B B A	B		-159		-20

AeroDynic® DOME ASSEMBLIES MODEL 24M STANDARD COLOR KEYS

PART NUMBER 8542D217-XX

COLOR KEY	DRIVERS SIDE W/O ALLEY	DRIVERS SIDE WITH ALLEY	PASSENGER SIDE W/O ALLEY	PASSENGER SIDE WITH ALLEY
129				
130				
131				
132				
133				
134				
135				
136				
137				
138				
139				
140				
141				
142				
143				
144				

NOTES:

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290C1295-04

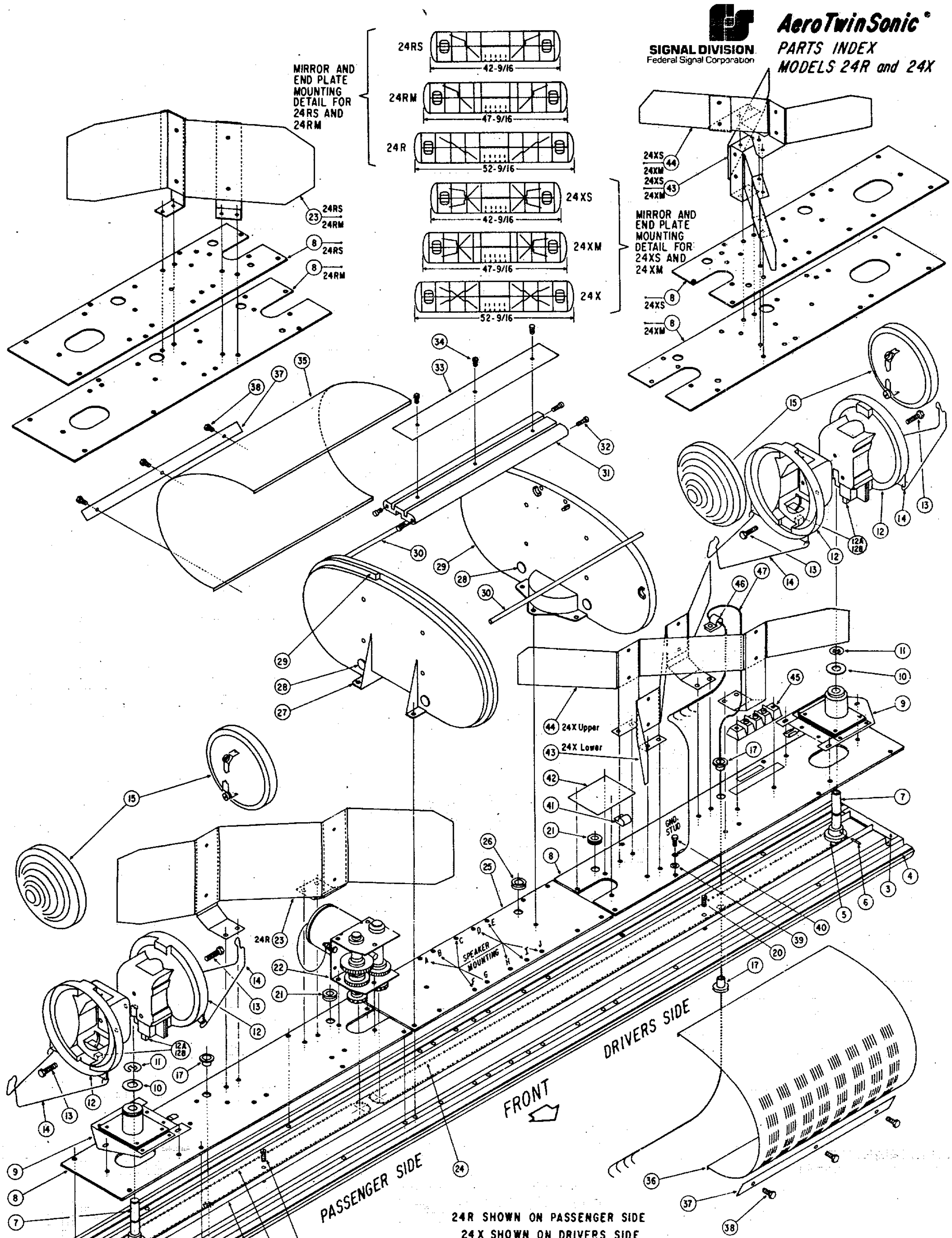
PPL0148 MODEL 24M
Medium AeroDynic® DOME ASSEMBLIES 1 AUG 1981

SIGNAL DIVISION
Federal Signal Corporation

AeroTwinSonic®

SIGNAL DIVISION Federal Signal Corporation

PARTS INDEX
MODELS 24R and 24X



24R SHOWN ON PASSENGER SIDE
24X SHOWN ON DRIVERS SIDE

FOR DOME ASSEMBLY AND COLOR KEY SEE PPL LISTED BELOW

PASSENGER SIDE		DRIVERS SIDE		DOME ASSEMBLY	
				PART NUMBER	REFER TO PPL
24R	24RQ	24X	24XQ	8542D032-XXX	PPL0130
24RM	24RMQ	24XM	24XMQ	8542D217-XXX	PPL0148
24RS	24RSQ	24XS	24XSQ	8542D129-XXX	PPL0138

AeroTwinSonic®

MODELS 24R and 24X

Item No.	Description	Part No.	Model 24 R	RM	RS	X	XM	XS
1	Extrusion, Machined	8542D004-11	1	0	0	1	0	0
	Extrusion, Machined, M	8542D004-15	0	1	0	0	1	0
	Extrusion, Machined, S	8542D004-12	0	0	1	0	0	1
2	1/4-20 x 5/8 Scr. Trs. Hd.	7000A457-10	4	4	4	4	4	4
3	Gasket, Extrusion End	8542A235	2	2	2	2	2	2
4	Gasket, Dome	8542A006	4	4	4	4	4	4
5	Gear, Chain Drive	8422A053	2	2	2	2	2	2
6	Pin, Roll	7091A017	2	2	2	2	2	2
7	Shaft	8470A014	2	2	2	2	2	2
8	Plate, Mounting, End	8542C320	2	0	0	2	0	0
	Plate, Mounting, End, M	8542C321	0	2	0	0	2	0
	Plate, Mounting, End, S	8542C319	0	0	2	0	0	2
9	Plate Mounting Assembly	8542A337	2	2	2	2	2	2
10	Washer, Flat	7072A139	2	2	2	2	2	2
11	Ring, Retaining	8422A010	2	2	2	2	2	2
12	Lamp Holder Assembly	8422B019	4	4	4	4	4	4
12A	Spring (replacement)	8240A032	*	*	*	*	*	*
12B	Brush (replacement)	8240A031-01	*	*	*	*	*	*
13	8-32 Scr., Hex. Hd. , Taptite	7011A043-10	4	4	4	4	4	4
14	Clamp, Wire	8422B016	4	4	4	4	4	4
15	Lamp, GE 4464, 60W	8107A066	4	4	4	4	4	4
	Lamp, Q Model , H7600	8107A103	*	*	*	*	*	*
16	Bushing, Nylon, P-625	8542A102	1	1	1	1	1	1
17	Bushing, Nylon, SB-625-8	8470A106	3	3	3	3	3	3
18	Guard, Chain	8542A332	1	0	0	1	0	0
	Guard, Chain, M	8542A349	0	1	0	0	1	0
	Guard, Chain, S	8542A373	0	0	1	0	0	1
19	Chain Drive, Passenger Side	8542A346	1	0	0	1	0	0
	Chain Drive, Psg. Side. M	8542A350	0	1	0	0	1	0
	Chain Drive, Psg. Side. S	8542A372	0	0	1	0	0	1
20	#4 Scr. Thd. Frm. Pan Hd.	7011A015-03	2	2	2	2	2	2
21	Bushing, Snap SB437-5	8449A010	2	2	2	2	2	2
22	Motor Bracket Gear and Shaft Assembly	8532C340	1	1	1	1	1	1
	Motor (replacement)	8422B111-25	*	*	*	*	*	*
23	Mirror, R, Passenger Side	8542C341	1	0	0	0	0	0
	Mirror, RM, Pasg. Side	8542B352	0	1	0	0	0	0
	Mirror, RS, Pasg. Side	8542B352	0	0	1	0	0	0
	Mirror, X, Pasg. Side Lower	8542C364	0	0	0	1	0	0
	Mirror, XM, Pasg. Side Lower	8542B379	0	0	0	0	1	0
	Mirror, XS, Pasg. Side Lower	8542B379	0	0	0	0	0	1
	Mirror, X, Pasg. Side Upper	8542C366	0	0	0	1	0	0
	Mirror, XM, Pasg. Side Upper	8542B378	0	0	0	0	1	0
	Mirror, XS, Pasg. Side Upper	8542B378	0	0	0	0	0	1
24	Chain Drive, Drivers Side	8542A437	1	0	0	1	0	0
	Chain Drive, M, Drv. Side	8542A351	0	1	0	0	1	0
	Chain Drive, S , Drv. Side	8542A371	0	0	1	0	0	1
25	Plate Mounting, Center	8542B327	1	1	1	1	1	1

Item No.	Description	Part No.	Model 24 R	RM	RS	X	XM	XS
26	Grommet, Rubber, 2901-A	8108A014	1	1	1	1	1	1
27	Bulkhead	8542D007	2	2	2	2	2	2
28	Plug, Hole	8542A096	4	4	4	4	4	4
29	Gasket, Bulkhead	8542A027	2	2	2	2	2	2
30	Support, Bulkhead	8542A121	2	2	2	2	2	2
31	Etrusion Assembly, Top	8542B023	1	1	1	1	1	1
32	8-32 Scr. Pan Hd. Slt.	7000A401-06	4	4	4	4	4	4
33	Plate, Cover	8542B016	1	1	1	1	1	1
34	10-32 Scr. S.S. Trs. Hd. Slt.	7000A455-06	3	3	3	3	3	3
35	Grille, Rear	8542D009	1	1	1	1	1	1
36	Grille, Front	8542D008	1	1	1	1	1	1
37	Clamp, Grille	8542B078	2	2	2	2	2	2
38	8-32 Scr. Hex. Wsh. Hd.	7000A336-06	6	6	6	6	6	6
39	Washer, Grounding	7075A025	1	1	1	1	1	1
40	8-32 Scr. Hex. Wsh. Hd. Tap	7011A054-06	1	1	1	1	1	1
41	Clamp, Wire	8240A072	1	1	1	1	1	1
42	Plate, Cover	8542A344	1	1	1	1	1	1
43	Mirror, R, Drivers Side	8542C342	1	0	0	0	0	0
	Mirror, RM, Drv. Side	8542B353	0	1	0	0	0	0
	Mirror, RS, Drv. Side	8542B353	0	0	1	0	0	0
	Mirror, X, Drv. Side Lower	8542C363	0	0	0	1	0	0
	Mirror, XM, Drv. Side Lower	8542B380	0	0	0	0	1	0
	Mirror, XS, Drv. Side Lower	8542B380	0	0	0	0	0	1
44	Mirror, X, Drivers Side Upper	8542C365	0	0	0	1	0	0
	Mirror, XM, Drv. Side Upper	8542B377	0	0	0	0	1	0
	Mirror, XS, Drv. Sive Upper	8542B377	0	0	0	0	0	1
45	Terminal Strip (3 terminals)	8542A080-01	1	1	1	1	1	1
46	Clamp, Cable	8542A028-10	1	1	1	1	1	1
47	Cable, Power, 4 Conductor	310A374	1	1	1	1	1	1
Not Shown								
	Wire Set, Motor	310A775	1	1	1	1	1	1
	Wire Set, Speaker	310A774	1	1	1	1	1	1
	Wire Set, Light Psg. Side	310A772	1	1	1	1	1	1
	Wire Set, Light Drv. Side	310A773	1	1	1	1	1	1

0 Indicates : Not used on this model.
* Indicates : As required.

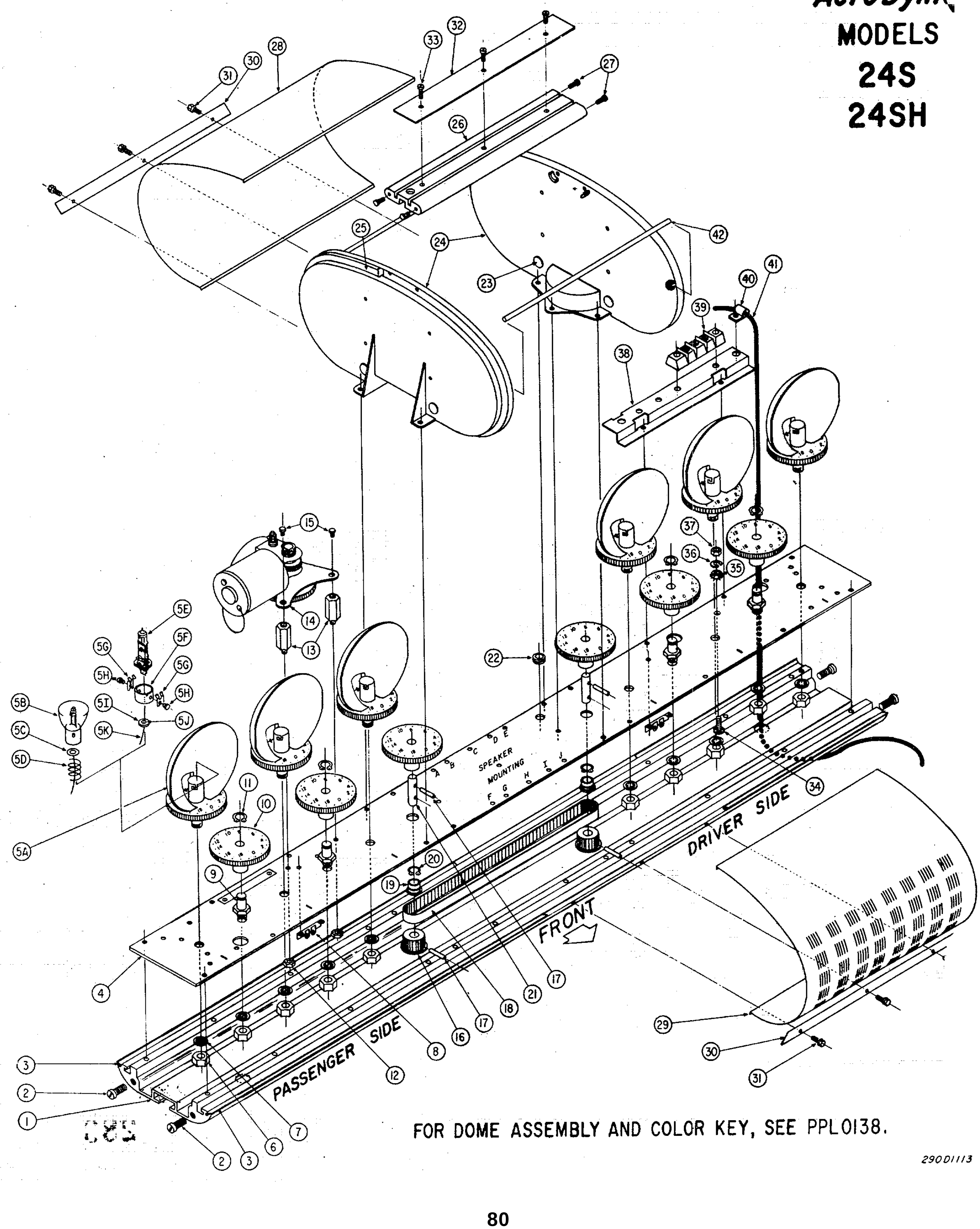
DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, description, and part number.
Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

Federal Signal Corporation
Signal Division
136th and Western Avenue
Blue Island, Illinois 60406

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SIGNAL DIVISION
Federal Signal Corporation

AeroDynic MODELS 24S 24SH



FOR DOME ASSEMBLY AND COLOR KEY, SEE PPL0138.

290D1113

AeroDynic®

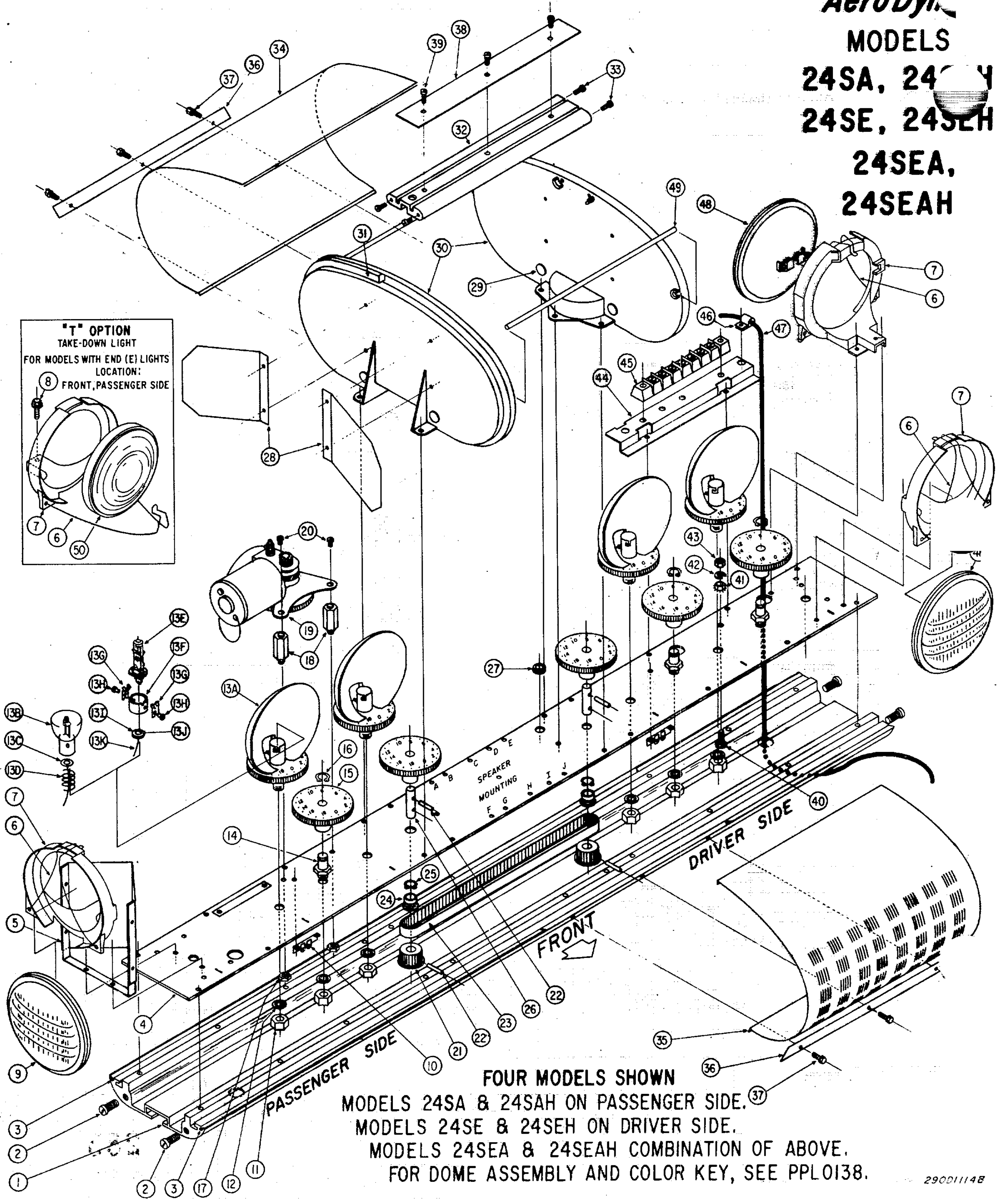
PPL0136 MODELS 24S and 24SH AUGUST 1981
PARTS LIST FOR DOME ASSEMBLY (and Color Key) SEE PPL 0138

Item No.	Description	Part No.	Model 24 S	Model 24 SH
1	Extrusion, Machined	8542D004-12	1	1
2	1/4-20 x 5/8 Screw Trs. Hd.	7000A457-10	4	4
3	Gasket, Dome	8542A006	4	4
4	Plate, Mounting	8542D127	1	1
5	Socket, Reflector, and Lamp Assy.	8542B111	6	0
	Socket, Reflector, and Lamp Assy.	8542B110	0	6
	Parts included in Item 5			
5A	Socket and Reflector Assy.	8542B022	6	0
	Socket and Reflector Assy.	8542B113	0	6
5B	Lamp, GE 1195	8440A108	6	0
5C	Lead Wire	8444A017-03	6	0
5D	Spring	8444A017-02	6	0
5E	Lamp, Halogen (H)	8440A265-01	0	6
5F	Bushing, Adapter	8440A250	0	6
5G	Retainer, Spring	8440A258	0	12
5H	8-32 x 5/8 Screw Pan Hd.	7011A104-03	0	12
5I	Insulator	8440A262	0	6
5J	Eyelet	8440A263	0	6
5K	Lead Wire	310A377	0	6
6	3/8 - 14 Nut, Hex.	7065A018A	10	10
7	Lockwasher	7075A032	10	10
8	Terminal Strip	8542A055A	2	2
9	Hub, Idler	8542A025B	4	4
10	Gear, Spur	8542B021	6	6
11	Ring, Retainer	8422A010	4	4
12	1/4 - 20 Nut, Ext. Keps	7058A005	2	2
13	Spacer	8542A071	2	2
14	Motor and Motor Bracket Assy.	8542C070	1	1
	Motor (separately)	8422B111-25	1	1
15	10-32 x 3/8 Screw Trs.Hd. Ext. Sems	7006A053-06	2	2
16	Pulley, Plastic	8542A059	2	2
17	Pin, Roll	7091A016	4	4
18	Belt, Timing	8542A014	1	1
19	Bearing	8542A054	2	2
20	Ring, Retaining	8542A061	2	2
21	Shaft, Pulley	8542A046	2	2
22	Grommet	8108A014	1	1
23	Plug, Hole	8542A096	4	4
24	Bulkhead	8542D007	2	2
25	Gasket, Bulkhead	8542A027	2	2
26	Extrusion Assy., Top	8542B023	1	1
27	8-32 x 3/8 Screw Pan Hd. Slt.	7000A401-06	4	4
28	Grille, Rear	8542D009	1	1
29	Grille, Front	8542D008	1	1
30	Grille, Clamp	8542B078	2	2
31	8-32 x 3/8 Screw, Hex. Wsh. Hd.	7000A336-06	6	6
32	Plate, Cover	8542B016	1	1
33	10-32 x 3/8 Screw S. S. Trs. Hd. Slt.	7000A455-06	3	3
34	Ground Lug, Screw 10-32 x 5/8 Pan Hd. Ext. Sems	7006A004-10	1	1
35	10-32 Nut, Hex. Ext. Sems	7058A004	1	1
36	#10 Lockwasher, Split	7074A009	1	1
37	10-32 Nut, Hex. Dbl. Chmf.	7059A014	1	1
38	Bracket, Terminal Strip	8542B091	1	1
39	Terminal Strip (3 Terminals)	8542A080-01	1	1
40	Cable Clamp	7011A027-04	1	1
41	Cable, Power (4 Conductor)	310A374	1	1
42	Support, Bulkhead	8542A121	2	2
Not Shown	Gasket, Extrusion	8542A235	2	2
	Gasket, End Cap, Dome Assy.	8542A234	2	2

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, description, and part number.
Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

Federal Signal Corporation
Signal Division
136th and Western Avenue
Blue Island, Illinois 60406

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FOUR MODELS SHOWN
MODELS 24SA & 24SAH ON PASSENGER SIDE.
MODELS 24SE & 24SEH ON DRIVER SIDE.
MODELS 24SEA & 24SEAH COMBINATION OF ABOVE.
FOR DOME ASSEMBLY AND COLOR KEY, SEE PPL0138.

AeroDynic®

PPL0137
PARTS LIST

MODELS : 24SA, 24SAH, 24SE, 24SEH, 24SEA, 24SEAH
FOR DOME ASSEMBLY (and Color Key) See PPL0138

AUGUST 1981

Item No.	Description	Part No.	MODEL 24 SA	SAH	SE	SEH	SEA	SEAH
1	Extrusion, Machined	8542D004-12	1	1	1	1	1	1
2	1/4-20 x 5/8 Screw Trs. Hd.	7000A457-10	4	4	4	4	4	4
3	Gasket, Dome	8542A006	4	4	4	4	4	4
4	Plate, Mounting	8542D127	1	1	1	1	1	1
5	Mirror Assembly	8542B093	2	2	0	0	0	0
6	Lamp Holder	8542D163	2	2	4	4	6	6
7	Clamp, Lamp	8542A166	2	2	4	4	6	6
8	8-32 x 3/4 Screw Hex Wsh Hd, T Option	7011A110-24	0	0	1	1	1	1
9	Lamp, Alley (A) GE H7614 50W	8107A104	2	2	0	0	2	2
10	Terminal Strip	8542A055A	2	2	2	2	2	2
11	3/8-24 Nut, Hex.	7065A018A	6	6	6	6	6	6
12	Lockwasher	7075A032	6	6	6	6	6	6
13	Socket, Reflector and Lamp Assy.	8542B111	4	0	4	0	4	0
	Socket, Reflector and Lamp Assy.	8542B110	0	4	0	4	0	4
	Parts included in Item 13							
13A	Socket, and Reflector Assy.	8542B022	4	0	4	0	4	0
	Socket, and Reflector Assy.	8542B113	0	4	0	4	0	4
13B	Lamp, GE 1195	8440A108	4	0	4	0	4	0
13C	Lead Wire	8444A017-03	4	0	4	0	4	0
13D	Spring	8444A017-02	4	0	4	0	4	0
13E	Lamp, Halogen (H)	8440A265-01	0	4	0	4	0	4
13F	Bushing Adapter	8440A250	0	4	0	4	0	4
13G	Retainer Spring	8440A258	0	8	0	8	0	8
13H	8-32 x 3/16 Screw Pan Hd.	7011A104-03	0	8	0	8	0	8
13I	Insulator	8440A262	0	4	0	4	0	4
13J	Eyelet	8440A263	0	4	0	4	0	4
13K	Lead Wire	310A377	0	4	0	4	0	4
14	Hub Idler	8542A025B	2	2	2	2	2	2
15	Gear, Spur	8542B021	4	4	4	4	4	4
16	Ring, Retainer	8422A010	2	2	2	2	2	2
17	1/4-20 Nut, Ext. Keps	7058A005	2	2	2	2	2	2
18	Spacer	8542C071	2	2	2	2	2	2
19	Motor & Motor Bracket Assy.	8542C070	1	1	1	1	1	1
	Motor (separately)	8422B111-25	1	1	1	1	1	1
20	10-32 x 3/8 Screw Trs. Hd. Ext. Sems	7006A053-06	2	2	2	2	2	2
21	Pulley, Plastic	8542A059	2	2	2	2	2	2
22	Pin, Roll	7091A016	4	4	4	4	4	4
23	Belt, Timing	8542A014	1	1	1	1	1	1
24	Bearing	8542A054	2	2	2	2	2	2
25	Ring, Retaining	8542A061	2	2	2	2	2	2
26	Shaft, Pulley	8542A046	2	2	2	2	2	2
27	Grommet	8108A014	1	1	1	1	1	1
28	Mirror	8542A072	4	4	0	0	4	4
29	Plug, Hole	8542A096	4	4	4	4	4	4
30	Bulkhead	8542D007	2	2	2	2	2	2
31	Gasket, Bulkhead	8542A027	2	2	2	2	2	2
32	Extrusion Assy., Top	8542B023	1	1	1	1	1	1
33	8-32 x 3/8 Screw Pan Hd. Slt.	7000A401-06	4	4	4	4	4	4
34	Grille, Rear	8542D009	1	1	1	1	1	1
35	Grille, Front	8542D008	1	1	1	1	1	1
36	Grille, Clamp	8542B078	2	2	2	2	2	2
37	8-32 x 3/8 Screw Hex. Wsh. Hd.	7000A336-06	6	6	6	6	6	6
38	Plate, Cover	8542B016	1	1	1	1	1	1
39	10-31-x 3/8 Screw S.S. Trs. Hd. Slt.	7000A455-06	3	3	3	3	3	3
40	Ground Lug, Screw 10-32 x 5/8 Pan Hd. Ext. Sems	7006A004-10	1	1	1	1	1	1
41	10-32 Nut Hex. Ext. Sems	7058A004	1	1	1	1	1	1
42	#10 Lockwasher, Split	7074A009	1	1	1	1	1	1
43	10-32 Nut, Hex. Dbl. Chmf.	7059A014	1	1	1	1	1	1
44	Bracket, Terminal Strip	8542B091	1	1	1	1	1	1
45	Terminal Strip (5 Terminals)	8542A080-02	1	1	1	1	0	0
	Terminal Strip (7 Terminals)	8542A080-03	0	0	0	0	1	1
46	Cable Clamp	7011A027-04	1	1	1	1	1	1
47	Cable, Power (6 Conductor)	310A375	1	1	1	1	0	0
	Cable, Power (9 Conductor)	310A376	0	0	0	0	1	1
48	Lamp, End (E) PAR 4414	8107A102	0	0	4	4	4	4
49	Support, Bulkhead	8542A121	2	2	2	2	2	2
50	Lamp, T Option , H7610	8107A106	0	0	1	1	1	1
Not	Gasket, Extrusion	8542A235	2	2	2	2	2	2
Shown	Gasket, End Cap, Dome Assy.	8542A234	2	2	2	2	2	2

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, description, and part number.
Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

Federal Signal Corporation
Signal Division
136th And Western Avenue
Blue Island, Illinois 60406

Printed in U.S.A.

Short AeroDynic® DOME ASSEMBLIES
Model 24S STANDARD COLOR KEYS

Part Number *8542D129-XX

Color Key	Drivers side (in)	Top row (drivers side / passenger side)	Bottom row (drivers side / passenger side)	Passenger side (in)	Drivers Side W/O ALLEY	Drivers Side W/ALLEY	Passenger Side W/O ALLEY	Passenger Side W/ALLEY
1	R→	R R R / R R R	R R R / R R R	←R	-01	-05	-01	-05
2	B→	B B B / B B B	B B B / B B B	←B	-02	-06	-02	-06
3	A→	A A A / A A A	A A A / A A A	←A	-03	-07	-03	-07
4	C→	C C C / C C C	C C C / C C C	←C	-04	-04	-04	-04
5	R→	B R R / R R B	B R R / R R B	←R	-28	-08	-28	-08
6	R→	R R C / C R R	R R C / C R R	←R	-09	-11	-09	-11
7	B→	B B C / C B B	B B C / C B B	←B	-10	-12	-10	-12
8	R→	R R R / B B B	R R R / B B B	←B	-01	-05	-02	-06
9	R→	R R C / C B B	R R C / C B B	←B	-09	-11	-10	-12
10	R→	R R R / R R R	A R R / R R A	←R	-13	-15	-14	-16
11	A→	A B B / B B A	A B B / B B A	←A	-17		-17	
12	R→	R R R / A A A	A R R / A A A	←A	-13	-15	-03	-07
13	R→	R R R / B B B	A R R / B B A	←B	-13	-15	-33	-18
14	B→	B B B / B B B	A B B / B B A	←B		-19	-33	-18
15	R→	R R R / R R C	R R R / R R R	←R	-01	-05	-20	-21
16	B→	B B B / B B C	B B B / B B B	←B	-02	-06	-22	-23
17	A→	A A A / A A C	A A A / A A A	←A	-03	-07	-24	-25
18	R→	R R R / B B C	R R R / B B B	←B	-01	-05	-22	-23
19	R→	R R C / C R C	R R C / C R R	←R	-09	-11	-26	-27
20	R→	B R R / R R C	B R R / R R B	←R	-28	-08	-29	-30
21	R→	R R R / A A C	R R R / A A A	←A	-01	-05	-24	-25
22	B→	B B C / C B C	B B C / C B B	←B	-10	-12	-31	-32
23	R→	R R C / C B C	R R C / C B B	←B	-09	-11	-31	-32
24 (SAME AS COLOR KE 41)	R→	R R R / B B B	A R R / B B A	←B	-13	-15	-33	-18
25	R→	A R R / R R A	A R R / R R A	←R	-34		-34	
26	C→	R R C / C R R	R R C / C R R	←C	-35	-35	-35	-35
27	R→	R R R / B B B	A R R / B B B	←B	-13	-15	-02	-06
28	B→	C B B / B B C	B B B / B B B	←B		-36	-22	-23
29	R→	R R C / C R R	A R C / C R A	←R		-37		-38
30	R→	R R R / R R R	A R R / R R R	←R	-13	-15	-01	-05
31	B→	A B B / B B A	A B B / B B A	←B	-48	-39	-48	-39
32	R→	R R R / C R R	R R R / C R R	←R	-01	-05	09	-11
33	R→	R B C / C B R	R B C / C B R	←R	-40		-40	
34	R→	C R R / R R C	R R R / R R R	←R		-41	-20	-21
35	B→	B B B / B B A	B B B / B B A	←A	-02	-06	-17	
36	R→	R R C / C R R	R R R / R R R	←R	-42	-46	-43	-47
37	R→	R C R / A C A	R C R / A C A	←A	-44		-45	
38	B→	A B B / C C C	A B B / C C C	←C	-48	-39	-04	-04
39	A→	C A A / A A C	A A A / A A A	←A		-49	-24	-25
40	A→	C A A / A A C	R A A / A A R	←A		-50		-51
41 (SAME AS COLOR KEY 24)	R→	R R R / B B B	A R R / B B A	←B		-52		-53
42	R→	A A A / A A A	A A A / A A A	←R	-54		-54	
43	A→	A A A / A A A	R A A / A A R	←A	-55		-56	
44	C→	R C R / R C R	A C R / R C A	←C	-57		-58	
45	B→	B B A / A B B	B B A / A B B	←B	-59		-59	

NOTES:

1. WHEN ORDERING DOME ASSEMBLIES, SPECIFY: MODEL, PASSENGER OR DRIVERS SIDE, WITH OR WITHOUT ALLEY LIGHTS, AND PART NUMBER (8542D129-XX).
2. WHEN REQUESTING A DOME ASSEMBLY, OTHER THAN THE STANDARD VERSIONS SHOWN ON THIS SHEET, SUPPLY A SKETCH OF THE DESIRED DOME ASSEMBLY COLOR CONFIGURATION, SEND THE SKETCH TO THE ADDRESS SHOWN BELOW FOR CONFIRMATION OF AVAILABILITY.
3. AVAILABLE COLORS:

R	RED
B	BLUE
A	AMBER
C	CLEAR

FEDERAL SIGNAL CORPORATION
SIGNAL DIVISION
SERVICE DEPARTMENT
136th and WESTERN AVENUE
BLUE ISLAND, ILLINOIS 60406

290C1115-01 1 AUG 1981
PPL0138 *Short AeroDynic®* DOME ASSEMBLIES

Short AeroDynic® DOME ASSEMBLIES Model 24S STANDARD COLOR KEYS (DRIVERS SIDE / PASSENGER SIDE)	Part Number *8542D129 –XX			
	DRIVERS SIDE		PASSENGER SIDE	
	W/O ALLEY	W/ALLEY	W/O ALLEY	W/ALLEY
COLOR KEY [illegible] (R→ R A A / R A A — A A R / A A R ←R)	-60		-60	
COLOR KEY 47 (B→ C B B / A B C — B B C / C B A ←B)		-61		-62
COLOR KEY [illegible]				
COLOR KEY 49				
COLOR KEY 50				
COLOR KEY 51				
COLOR KEY 52				
COLOR KEY 53				
COLOR KEY 54				
COLOR KEY 55				
COLOR KEY 56				
COLOR KEY [illegible]				
COLOR KEY 58				
COLOR KEY 59				
COLOR KEY 60				
COLOR KEY 61				
COLOR KEY 62				
COLOR KEY 63				
COLOR KEY 64				
COLOR KEY 65				
COLOR KEY [illegible]				
COLOR KEY 67				
COLOR KEY [illegible]				
COLOR KEY 69				
COLOR KEY 70				

Short AeroDynic® DOME ASSEMBLIES Model 24S STANDARD COLOR KEYS (DRIVERS SIDE / PASSENGER SIDE)	Part Number *8542D129 –XX			
	DRIVERS SIDE		PASSENGER SIDE	
	W/O ALLEY	W/ALLEY	W/O ALLEY	W/ALLEY
COLOR KEY 71				
COLOR KEY 72				
COLOR KEY 73				
COLOR KEY 74				
COLOR KEY 75				
COLOR KEY 76				
COLOR KEY 77				
COLOR KEY 78				
COLOR KEY 79				
COLOR KEY 80				
COLOR KEY 81				
COLOR KEY 82				
COLOR KEY 83				
COLOR KEY 84				
COLOR KEY 85				
COLOR KEY 86				
COLOR KEY 87				
COLOR KEY 88				
COLOR KEY 89				
COLOR KEY 90				

NOTES:

1. WHEN ORDERING DOME ASSEMBLIES, SPECIFY: MODEL, PASSENGER OR DRIVERS SIDE, WITH OR WITHOUT ALLEY LIGHTS, AND PART NUMBER (8542D129-XX).
2. WHEN REQUESTING A DOME ASSEMBLY, OTHER THAN THE STANDARD VERSIONS SHOWN ON THIS SHEET, SUPPLY A SKETCH OF THE DESIRED DOME ASSEMBLY COLOR CONFIGURATION, SEND THE SKETCH TO THE ADDRESS SHOWN BELOW FOR CONFIRMATION OF AVAILABILITY.
3. AVAILABLE COLORS:

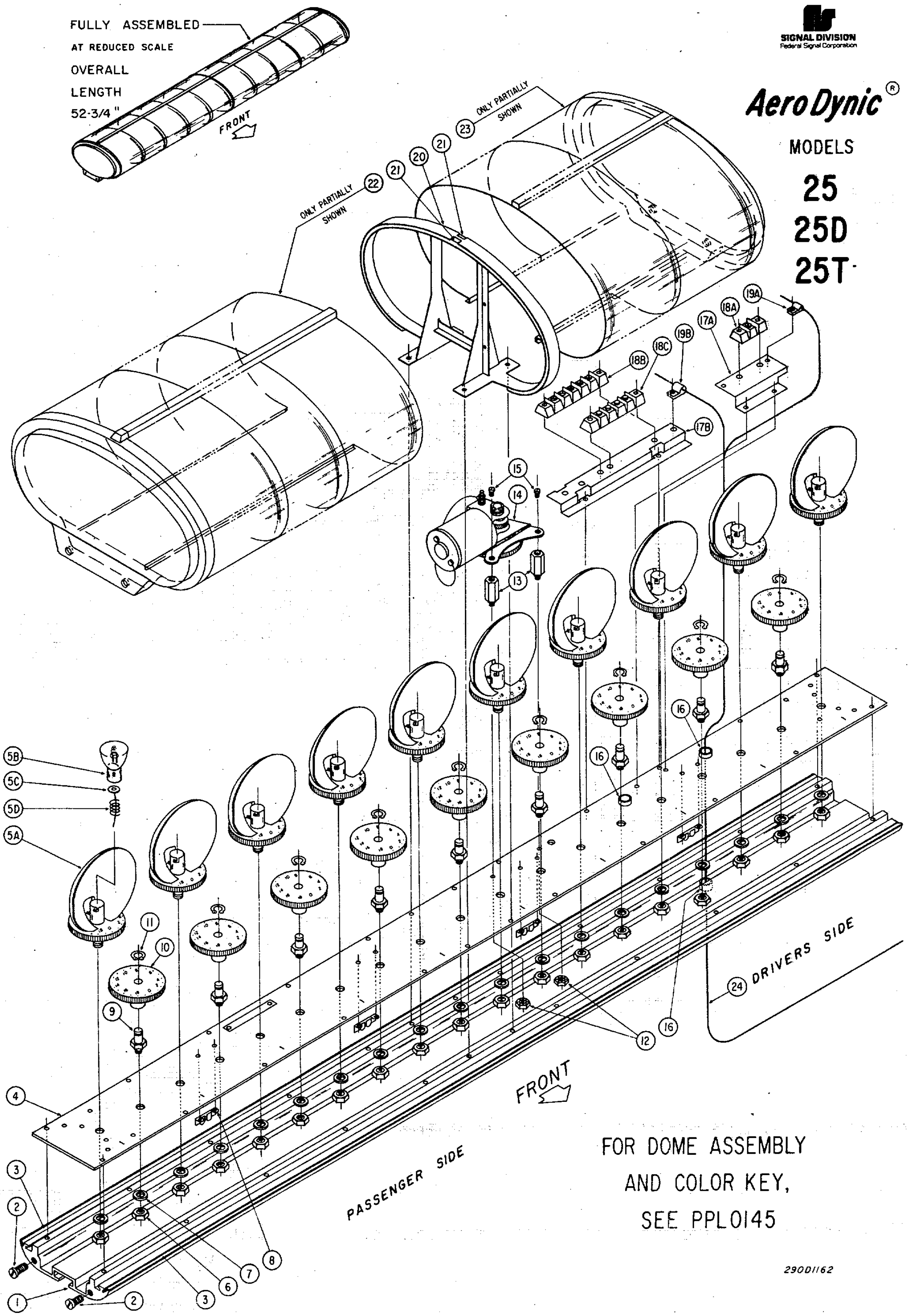
R	RED
B	BLUE
A	AMBER
C	CLEAR

FEDERAL SIGNAL CORPORATION
SIGNAL DIVISION
SERVICE DEPARTMENT
136th and WESTERN AVENUE
BLUE ISLAND, ILLINOIS 60406

290C1115-02   1 AUG 1981

PPL0138 *Short AeroDynic®* DOME ASSEMBLIES

SIGNAL DIVISION Federal Signal Corporation



FULLY ASSEMBLED
AT REDUCED SCALE
OVERALL
LENGTH
52-3/4"
FRONT
SIGNAL DIVISION
Federal Signal Corporation
AeroDynic®
MODELS
25
25D
25T
ONLY PARTIALLY SHOWN
ONLY PARTIALLY SHOWN
DRIVERS SIDE
FRONT
PASSENGER SIDE
FOR DOME ASSEMBLY
AND COLOR KEY,
SEE PPL0145
29001162

AeroDynic®

MODELS 25, 25D, AND 25T

FOR DOME ASSEMBLY (and Color Key) SEE PPL 0145

PPL 0144 AUGUST 1981

PARTS LIST

Item No.	Description	Part No.	MODEL 25	MODEL 25D	MODEL 25T
1	Extrusion, Machined	8542D004-14	1	1	1
2	1/4-20 x 5/8 Screw, Trs. Hd.	7000A457-10	4	4	4
3	Gasket, Dome	8542A006-01	2	2	2
4	Plate, Mounting	8542D164	1	1	1
5	Socket, Reflector, & Light Assembly	8542B111B	10	10	10
	Parts included in Item 5				
5A	Socket, Reflector Assembly	8542B022	10	10	10
5B	Lamp, GE 1195	8440A108	10	10	10
5C	Lead Wire	8444A017-03	10	10	10
5D	Spring	8444A017-02	10	10	10
6	3/8-24 Nut, Hex	7065A018	19	19	19
7	Lockwasher	7075A032	19	19	19
8	Terminal Strip	8542A055	4	4	4
9	Hub, Idler	8542A025B	9	9	9
10	Gear, Spur	8542B021	9	9	9
11	Ring, Retaining	8422A010	9	9	9
12	1/4-20 Nut, Ext. Keps	7058A005	2	2	2
13	Spacer	8542A071B	2	2	2
14A	Motor & Motor Bracket Assembly	8542C070	1	0	0
	Motor Seperately	8542A273	1	0	0
14B	Motor & Motor Bracket Assembly	8542C070-01	0	1	1
	Motor Seperately	8542B111-27	0	1	1
15	10-32 x 3/8 Trs. Hd. Ext. Sems. Scr.	7006A053-06	2	2	2
16	Bushing, Snap	8470A106	3	3	3
17A	Bracket, Terminal Strip	8542A181	1	0	0
17B	Bracket, Terminal Strip	8542B091	0	1	1
18 A	Terminal Strip (1 terminal)	8542A080-05	1	0	0
18 B	Terminal Strip (5 terminals)	8542A080-02	0	1	0
18C	Terminal Strip (4 terminals)	8542A080-04	0	0	1
19 A	Clamp, Cable 5/16 nom.	8542A028-01	1	0	0
19B	Clamp, Cable 1/2 nom.	8542A028-03	0	1	1
20	Bulkhead Center	8542D011	1	1	1
21	Gasket, Bulkhead	8542A027	2	2	2
	SEE PPL 0145 FOR DOME ASSY. & COLOR KEY				
22	Housing Assembly, Passenger Side	8542D168-XX	1	1	1
23	Housing Assembly, Drivers Side	8542D168-XX	1	1	1
24A	Cable, Power 2 Conductor	310A398	1	0	0
24B	Cable, Power 6 Conductor	310A375	0	1	0
24C	Cable, Power 5 Conductor	310A401	0	0	1
Not Shown	Gasket, Etrusion	8542A235	2	2	2
	Gasket, End Cap, Dome Assy.	8542A234	2	2	2

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, description, and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

Federal Signal Corporation
Signal Division
136 th and Western Avenue
Blue Island, Illinois 60406

Printed in U.S.A.

AeroDynic® DOME ASSEMBLIES MODEL 25 STANDARD COLOR KEYS

PART NUMBER 8542 D168-XX

COLOR KEY	Left end (DRIVERS SIDE)	FRONT (top row)	Back (bottom row)	Right end (PASSENGER SIDE)	DRIVERS SIDE	PASSENGER SIDE
1	R	R R R R R R R R R R	R R R R R R R R R R	R	01	01
2	B	B B B B B B B B B B	B B B B B B B B B B	B	02	02
3	A	A A A A A A A A A A	A A A A A A A A A A	A	03	03
4	R	A A A A A A A A A A	R R R R R R R R R R	R	04	05
5	R	R R R R R B B B B B	R R R R R B B B B B	B	01	02
6	R	R R R R R A A A A A	R R R R R A A A A A	A	01	03
7	R	R R (black) R R	R R R R R R R R R R	R	07	06
8	B	B B (black) B B	B B B B B B B B B B	B	09	08
9	A	A A (black) A A	A A A A A A A A A A	A	11	10
10	R	A A (black) A A	R R R R R R R R R R	R	13	12
11	A	A A A A A A A A A A	R A A A A A A A A R	A	14	15
12	B	B C R C B B C R C B	B C R C B B C R C B	B	16	16
13	A	R R (black) R R	A A A A A A A A A A	A	17	18
14	A	A A A A A A A A A A	C A A A A A A A A C	A	SAME AS COLOR KEY 44: 59	60
15	C	C R R R C C R R R C	C R R R C C R R R C	C	21	21
16	C	C R C R C C R C R C	C R C R C C R C R C	C	22	22
17	A	A C A C A A C A C A	A C A C A A C A C A	A	23	23
18	R	R R R C R R C R R R	R R R C R R C R R R	R	24	24
19	B	A A A A C C A A A A	A A A A C C A A A A	B	25	25
20	R	R R R R R R R R R R	C R R R R R R R R C	R	26	27
21	A	C A A A A A A A A C	C A A A A A A A A C	A	28	28
22	R	C C R R C C R R C C	C C R R C C R R C C	R	29	
23	C	C C C C C C C C C C	C C C C C C C C C C	C	30	30
24	R	R C R R C C R R C R	R C R R C C R R C R	R	31	31
25	C	R C R C C C C R C R	R C R C C C C R C R	C	32	32
26	A	A A A A A C C C C C	A A A A A C C C C C	C	03	30
27	C	C R C R C R C R C R	C R C R C R C R C R	R	22	33
28	R	R C R C R R C R C R	R C R C R R C R C R	R	33	33
29	A	A B C B A A B C B A	A B C B A A B C B A	A	35	35
30	A	A A A A R R A A A A	A A A A R R A A A A	A	36	
31	R	R C C R C C R C C R	R C C R C C R C C R	R	37	37
32	A	A C C C C C C C C A	A C C C C C C C C A	A	38	38
33	A	B B C R R R R C B B	B B C R R R R C B B	A	39	39
34	R	R R R R C C R R R R	R R R R C C R R R R	R	40	40
35	B	B B R R R A A A B B	B B R R R A A A B B	B	41	42
36	R	R C R C R R C R C R	R R R R R R R R R R	R	43	44

NOTES:

1. WHEN ORDERING DOME ASSEMBLIES, SPECIFY: MODEL, PASSENGER OR DRIVERS SIDE, AND NUMBER (85420168-XX).
2. WHEN REQUESTING A DOME ASSEMBLY, OTHER THAN THE STANDARD VERSIONS SHOWN ON SHEET, SUPPLY A SKETCH OF THE DESIRED DOME ASSEMBLY COLOR CONFIGURATION, SEND THE SKETCH TO THE ADDRESS SHOWN BELOW FOR CONFIRMATION OF AVAILABILITY.
3. AVAILABLE COLORS:

R	RED
B	BLUE
A	AMBER
C	CLEAR
(black)	BLACK

FEDERAL SIGNAL CORPORATION
SIGNAL DIVISION
SERVICE DEPARTMENT
136th and WESTERN AVENUE
BLUE ISLAND, ILLINOIS 60406

290C1163-01 1 AUG 1981

PPL0145 MODEL 25
AeroDynic® DOME ASSEMBLIES

SIGNAL DIVISION Federal Signal Corporation

AeroDynic® DOME ASSEMBLIES MODEL 25 STANDARD COLOR KEYS

PART NUMBER 8542 D168-XX

COLOR KEY	Drivers side end	Front row	Rear row	Passenger side end	DRIVERS SIDE	PASSENGER SIDE
37	R	C R R R R R R R R C	A R R R R R R R R A	R	45	46
38	R	B B B B B B B B B B	R R R R R R R R R R	R	47	48
39	A	A A A A A A A A A A	C C A A C C _ _ C C	A	49	50
40	A	A A A A A A A A A A	C C A A A A A A C C	A	51	52
41	A	A A A C C C C A A A	C C A A C C A A C C	A	53	54
42	A	A A A C C C C A A A	C C A A A A A A C C	A	55	56
43	A	A A A A A A A A A A	C A A A C C A A A C	A	57	58
44	A	A A A A A A A A A A	C A A A A A A A A C	A	SAME AS COLOR KEY 14 59	60
[illegible]	[illegible]	A A A C C C C A A A	C A A A A A A A A C	A	61	62
46	A	A A A C C C C A A A	C A A A C C A A A C	A	63	64
47	R	R B B R C C R B B R	R B B R C C R B B R	R	65	65
48	R	A R R R R R R R R A	C C R R R R R R C C	R	66	67
49	R	R R C R R R R C R R	R R R R R R R R R R	R	69	70
50	R	R R R C R R C R R R	R R R R R R R R R R	R	71	72
51	C	B C B B B B B B C B	B C B B B B B B C B	C	73	73
52	R	A R A R A A R A R A	A R A R A A R A R A	R	74	74
[illegible]	A	A A A C C C C A A A	A C A A A A A A C A	A	75	76
[illegible]4	R	R R R R R R R R R R	A R R R R R R R R A	R	77	78
55	R	R R R R C C R R R R	R R R R R R R R R R	R	79	80
56	R	B R R R R R R R R B	B R R R R R R R R B	R	81	81
57	A	A A C C C C C C A A	A A C C C C C C A A	A	82	82
58	R	R R C C R R C C R R	R R C C R R C C R R	R	84	84
59	R	R B A C R R C A B R	R B A C R R C A B R	R	85	85
60						
61						
62						
63						
64						
65						
66						
67						
68						
69						
70						
71						
72						

NOTES:

1. WHEN ORDERING DOME ASSEMBLIES, SPECIFY: MODEL, PASSENGER OR DRIVERS SIDE, AND PART NUMBER (8542 D168-XX).
2. WHEN REQUESTING A DOME ASSEMBLY, OTHER THAN THE STANDARD VERSIONS SHOWN ON THIS SHEET, SUPPLY A SKETCH OF THE DESIRED DOME ASSEMBLY COLOR CONFIGURATION, SEND THE SKETCH TO THE ADDRESS SHOWN BELOW FOR CONFIRMATION OF AVAILABILITY.
3. AVAILABLE COLORS:

R	RED
B	BLUE
A	AMBER
C	CLEAR
■	BLACK

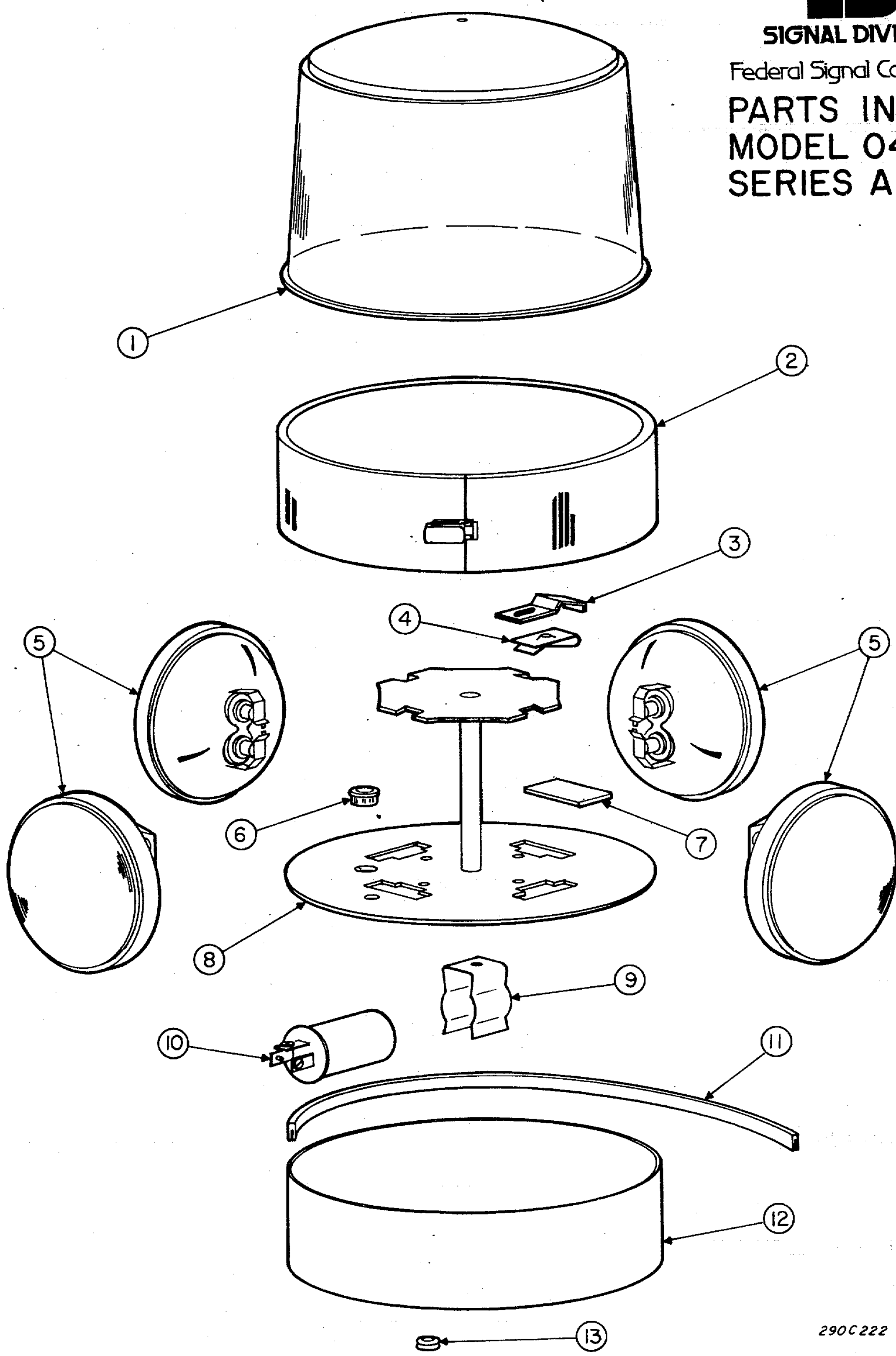
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SIGNAL DIVISION
SERVICE DEPARTMENT
136th and WESTERN AVENUE
BLUE ISLAND, ILLINOIS 60406

290C1163-02 1 AUG 1981
PPL0145 MODEL 25
AeroDynic® DOME ASSEMBLIES
SIGNAL DIVISION Federal Signal Corporation

SIGNAL DIVISION

Federal Signal Corporation

PARTS INDEX
MODEL 044
SERIES A1



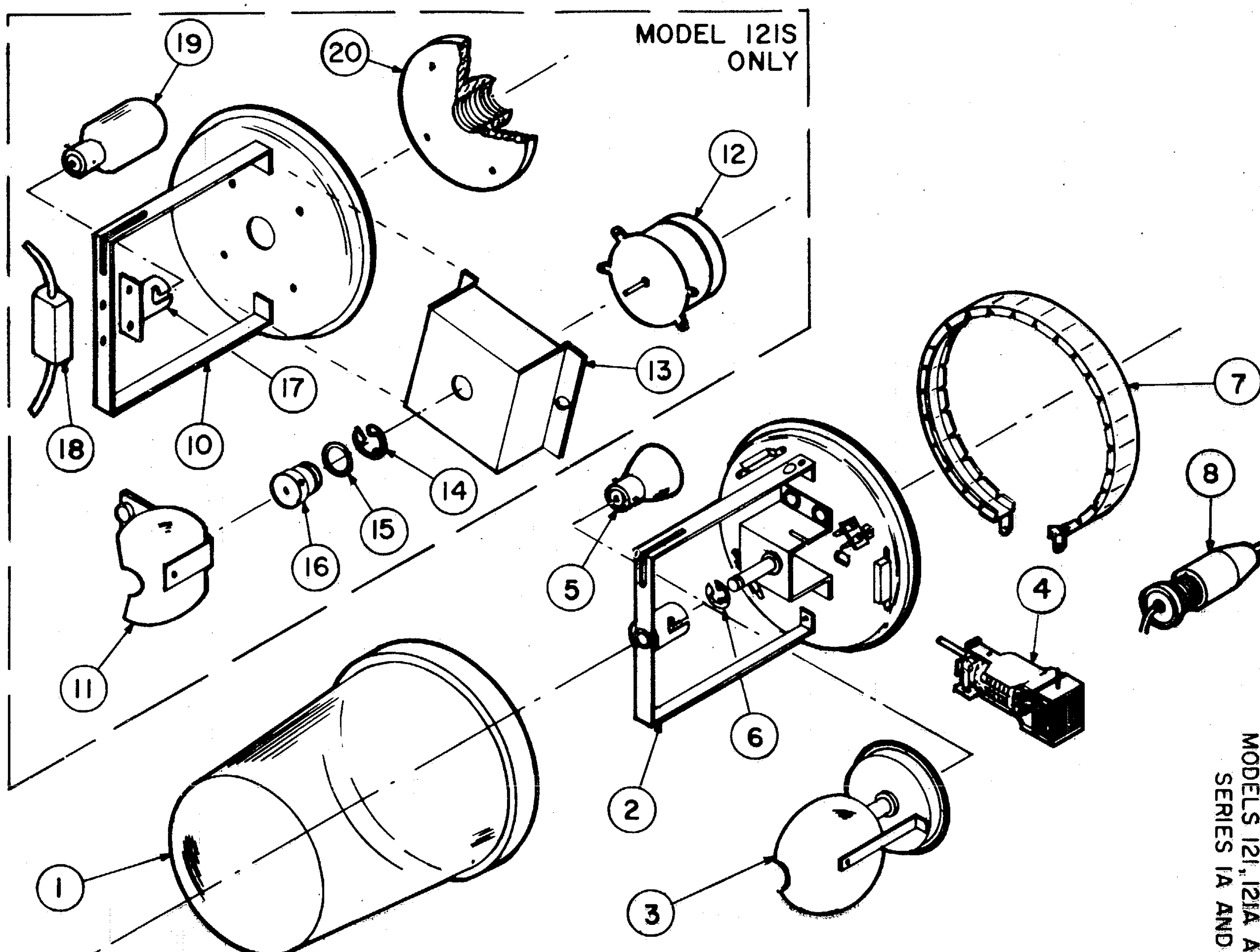
Index No.	Description	Part No.	Qty.
1	Dome, Red	8422C002-01	1AR
	Dome, Blue	8422C002-02	
	Dome, Amber	8422C002-04	
	Dome, Clear	8422C002-05	
	Split Dome, Red and Amber	8422C160-01	
	Split Dome, Red and Blue	8422C160-02	
	Split Dome, Amber and Blue	8422C160-03	
	Split Dome, Red and Clear	8422C160-04	
2	Band Assembly	8422C025	1
3	Lamp Clamp	8240A016	4
4	Tinnerman Speed Nut	8240A054	4
5	Lamp, 6-volt (#4516)	8107A032	4AR
	Lamp, 12-volt (#4416)	8107A033	
	Lamp, 24-volt (#4505)	8107A027	
6	Heyco Bushing	8422A095	1
7	Rubber Pad	8240A548	4
8	Lampholder Assembly	8240C545	1
9	Flasher Bracket (for Signal-Stat flasher)	8226A367	1AR
	Flasher, Bracket (for Tung-Sol flasher)	8240A550	
10	Flasher, 6-volt (Signal-Stat)	8226A187-03	1AR
	Flasher, 12-volt (Signal-Stat)	8285A035	
	Flasher, 12-volt (Tung-Sol)	8285A035	
	Flasher, 24-volt (Signal-Stat)	8226A187-05	
11	Gasket	8240A546	1
12	Housing	8422C003	1
13	Grommet	8108A018	1
Not	Switch (fused)	8240A549	1
Shown	Ground Strap	8240A023	1

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

Federal Signal Corporation
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Blue Island, Illinois 60406

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290B123B

SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX
VITALITE
MODELS 121, 121A AND 121S
SERIES 1A AND 2A

Index No.	Model	Description	Part No.	Qty.
1	All	Dome, Red	8444B019-01	1 AR
		Dome, Amber	8444B019-02	
		Dome, Blue	8444B019-03	
		Dome, Clear	8444B019-04	
		Dome, Green	8444B019-05	
		Split Dome, Red and Amber	8444B097-01	1 AR
		Split Dome, Red and Blue	8444B097-02	
		Split Dome, Amber and Blue	8444B097-03	
		Split Dome, Red and Clear	8444B097-04	
		Split Dome, Red and Green	8444B097-05	
2	121	Mechanism Assy., Magnetic Mount	8444B007	1
	121A(6V,12V,24V)	Mechanism Assy., Permanent Mount	8444B033	1
	121A(24V ungrd. frame)	Mechanism Assy., Permanent Mount	8444B108	1
	121A(36V ungrd. frame)	Mechanism Assy., Permanent Mount	8444B108-01	1
	121,121A(6V,12V,24V, 36V)	Drive Wheel and Mirror Assy.	8444A086	1
	121A(36V ungrd. frame)	Drive Wheel and Mirror Assy.	8444A086-01	1
4	121(6V), 121A(6V)	Motor, 6V	8440A030	1
	121, 121A(12V, 36V)	Motor, 12V	8444A016	1 AR
	121, 121A(24V)	Motor, 24V	8444A016-01	
5	121(6V), 121A(6V)	Lamp, 6V GE 1183	8440A107	1
	121(12V), 121A(12V)	Lamp, 12V GE 1195	8440A108	1
	121(24V), 121A(24V, 36V)	Lamp, 24V GE 311	8107A045	1
6	121, 121A	Retaining Ring	8184A024	1
7	All	Retaining Band Assembly	8444A034	1
8	121(6V)	Plug and Cable Assembly 6V	8440B024	1
	121(12V)	Plug and Cable Assembly 12V	8440B015	1
9	121(24V), 121A(24V)	Resistor, 75 Ohm, 10 Watt	8441A055	1
10	121S	Base and Lamp Bracket Assembly	8444B106	1
11	121S	Mirror and Bracket and Weight Assembly	8444A105	1
12	121S	Motor	8241A030	1
13	121S	Motor Housing	8444C102	1
14	121S	Retaining Ring	8422A010	1
15	121S	Tension Washer	8241A028	1
16	121S	Mirror Bracket Hub	8444A090	1
17	121S	Lamp Socket	8444A121	1
18	121S	Power Resistor	8444A110	1
19	121S	Lamp GE 25T 8DC	8444A071	1
20	121S	Flange	8241B017	1
Not Shown				
	121	Dome Cover	8444B035	1
	121A(36V)	Resistor, 12 Ohm, 10 Watt	8469A439	1
	121S	Clamp Cord	8240A072	1
		Gasket (for drive wheel)	8444A037	1

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.

Refer to PARTS PRICE INDEX (Part No. 1001) for prices of parts.

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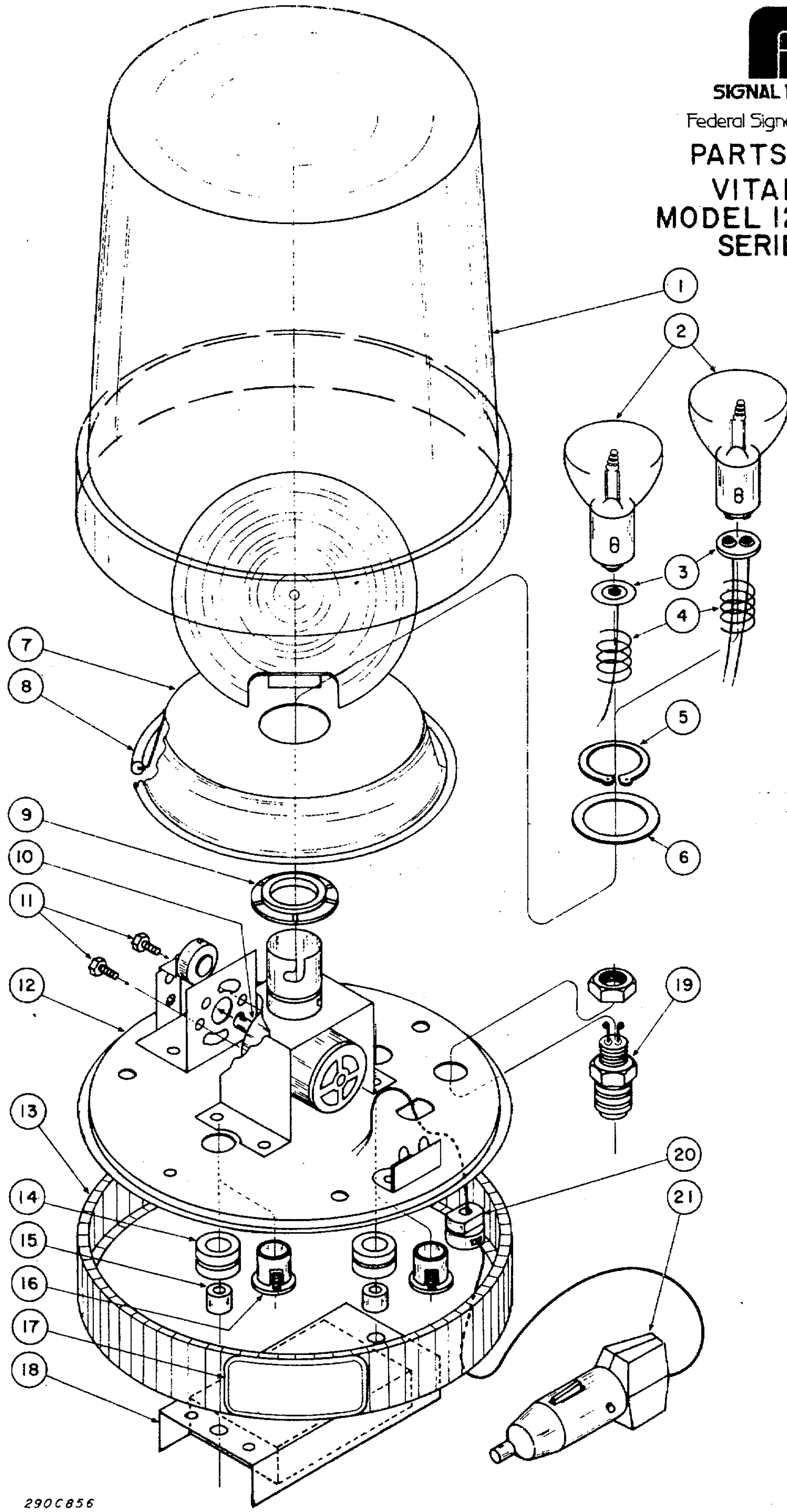
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SIGNAL DIVISION

Federal Signal Corporation

PARTS INDEX

VITALIGHT
MODEL 121*, 121A*
SERIES B1



Item No.	Description	Part No.	121* mag. base			121A* un gnd			121A* gnd			121A*
		Voltage ——	6	12	24	6	12	24	6	12	24	36
1	Dome, Red	8444B019-01	X	X	X	X	X	X	X	X	X	X
	Dome, Amber	8444B019-02	X	X	X	X	X	X	X	X	X	X
	Dome, Blue	8444B019-03	X	X	X	X	X	X	X	X	X	X
	Dome, Clear	8444B019-04	X	X	X	X	X	X	X	X	X	X
	Dome, Green	8444B019-05	X	X	X	X	X	X	X	X	X	X
	Split Dome, Red-Amber	8444B097-01	X	X	X	X	X	X	X	X	X	X
	Split Dome, Red-Blue	8444B097-02	X	X	X	X	X	X	X	X	X	X
	Split Dome, Amber - Blue	8444B097-03	X	X	X	X	X	X	X	X	X	X
	Split Dome, Red - Clear	8444B097-04	X	X	X	X	X	X	X	X	X	X
	Split Dome, Red - Green	8444B097-05	X	X	X	X	X	X	X	X	X	X
2	Lamp, 6 Volt single	8440A0107	1						1			
	6 Volt double	8107A097				1						
	12 Volt single	8440A108		1						1		
	12 Volt double	8107A096					1					
	24 Volt single	8107A045			1						1	
	24-36 Volt double	8107A098						1				1
3	Contact, Lamp single	8444A017-03	1	1	1				1	1	1	
	Contact, Lamp double	8444A135-02				1	1	1				1
4	Spring, Lamp	8444A017-02	1	1	1	1	1	1	1	1	1	1
5	Retaining Ring	8440A270	1	1	1	1	1	1	1	1	1	1
6	Washer, Molded	8440A255	1	1	1	1	1	1	1	1	1	1
7	Mirror & Drive Wheel Assy.	8444A134	1	1	1	1	1	1	1	1	1	1
8	Rubber Tire part of item 7	8444A037	1	1	1	1	1	1		1	1	1
9	Washer, Shoulder	8440A254	1	1	1	1	1	1	1	1	1	1
10	Idler Wheel, and Spring Assy.	8444A132B	1	1	1	1	1	1	1	1	1	1
11	4-40 x 3/16 Screw, Slt. Hex. Wash. Hd.	7010A006-03	1	1	1	1	1	1	1	1	1	1
12	4-40 x 3/16 Hex. Hd. Ind. Int. motor mtg. screws	7006A016-03	2	2	2	2	2	2	2	2	2	2
13	Motor, 6 Volt	8444B124-03	1			1			1			
	Motor, 12 Volt	8444B124-01		1			1			1		
	Motor, 24 Volt	8444B124-02			1			1			1	
	Motor, 36 Volt	8444B124-01										1
14	Base Plate Assembly	8444B133B	1	1	1	1	1	1	1	1	1	
	Base Plate Assembly	8444B138B-01										1
15	Retaining Band Assembly	8444A034	1	1	1	1	1	1	1	1	1	1
16	Grommet, Rubber	8108A014	2	2	2							
17	Bushing	8440A271	2	2	2							
18	Hole Plug	8470A047				2	2	2	2	2	2	2
19	Nameplate 121*006	8146A638	1									
	121*012	8146A638-01		1								
	121*024	8146A638-02			1							
	121A*006	8146A638-03				1			1			
	121A*012	8146A638-04					1			1		
	121A*024	8146A638-05						1			1	
	121A*036	8146A638-06										1
20	Magnet Base Assembly	8440A247	1	1	1							
21	Resistor, Power	8469A439										1
22	Bushing, Rt. Angle	8444A023	1	1	1	1	1	1	1	1	1	1
23	Plug & Cable Assy. 6 Volt	8440B024	1									
	12-24 Volt	8440B015		1	1							

X Indicates 1 As Required

DO NOT ORDER PARTS BY INDEX NUMBER.

Give model, voltage, description and part number.

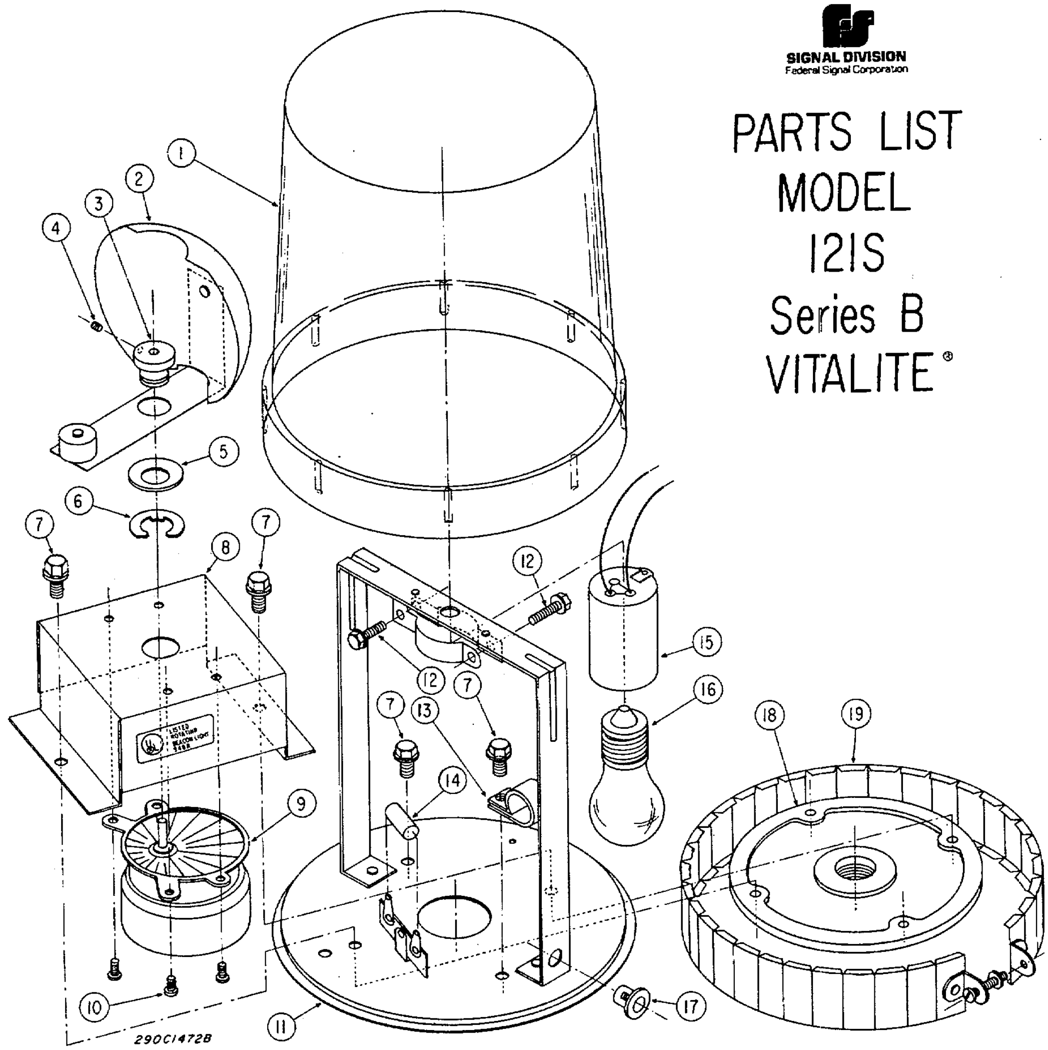
Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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Signal Division
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Blue Island, Illinois 60406

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SIGNAL DIVISION
Federal Signal Corporation

PARTS LIST MODEL 121S Series B VITALITE®



PPL 0160 VITALITE® Model 121S Series B AUGUST 1981

PARTS LIST

Item No.	Description	Part No.	Qty.
1	Dome, Red	8444B019A-01	
	Dome, Amber	8444B019A-02	
	Dome, Blue	8444B019A-03	
	Dome, Clear	8444B019A-04	
	Dome, Green	8444B019A-05	
	Dome, Lexan, Red	8444B019A-11	1 AR
	Dome, Lexan, Amber	8444B019A-12	
	Dome, Lexan, Blue	8444B019A-13	
	Dome, Lexan, Clear	8444B019A-14	
	Dome, Lexan, Green	8444B019A-15	
	Dome, Merlon CIE Blue	8444B019A-16	
	Dome, Split, Red-Amber	8444B097-01	
	Dome, Split, Red-Blue	8444B097-02	
	Dome, Split, Amber-Blue	8444B097-03	
	Dome, Split, Red-Clear	8444B097-04	
	Dome, Split, Red-Green	8444B097-05	
2	Mirror, Bkt. & Wght. Assy.	8444A105C	1
3	Hub, Mirror Bracket	8444A090	1
4	8-32 Screw, Allen Head	7008A012-03	1
5	Washer, Spring	8241A028	1
6	Ring, Retaining 5133-37	8422A010	1
7	10-32 Scr. Tap. Hex. Wsh.	7011A067-06	5
8	Housing, Motor	8444A156A	1
9	Motor, FrHp 120VAC 1 Ph.	8241A030	1
10	4-40 Scr. Phl. Pan Hd.	7011A053-99	4

Item No.	Description	Part No.	Qty.
11	Base Plate Assembly	8444B106D	1
12	6-32 Scr. Hex. Wsh. Hd.	7011A109-12	2
13	Clamp, Cable	8542A028A-01	1
14	Resistor, 25Ohm 5W 5%	103A216A	1
15	Socket, Lamp, Porcelain	8263A061A	1
16	Lamp, 120V GE 40S11N	8444A173	1
17	Bushing, Snap	8444A170A	1
18	Flange, Mounting	8241B017-01	1
19	Retaining Band Assembly	8444A034	1
Not Shown			
	Wireset	310A713	1
	Nameplate	8146A274D	1
	Instruction Sheet	8444A157A	1

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, series, description, and part number.

Refer to PARTS PRICE LIST (Part No.1001)
for prices of parts.

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Blue Island, Illinois 60406

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SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX MODEL 143 SERIES A1 12 & 24V

PPL 120-A1
PARTS LIST

MODEL 143 LIGHT
SERIES A1
24VOLT

AUGUST 1981

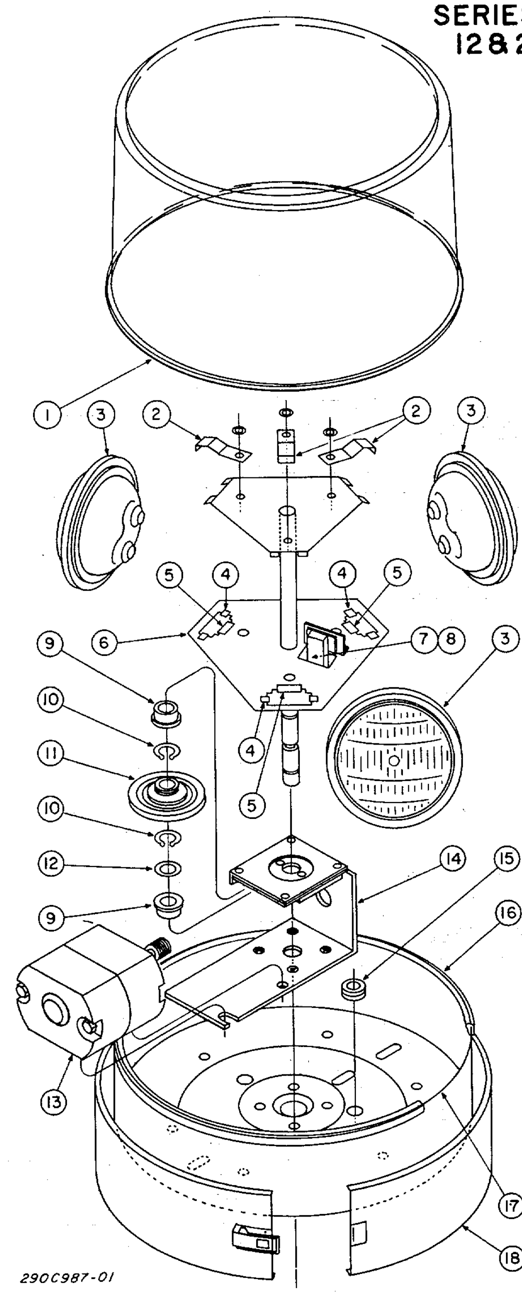
Item	Description	Part No.	Qty.
1	Dome, Red	8422C002-01	1AR
	Dome, Blue	8422C002-02	
	Dome, Green	8422C002-03	
	Dome, Amber	8422C002-04	
	Dome, Clear	8422C002-05	
2	Clip, Lamp	8240A016	3
3	Lamp, 12V, GE4416	8107A033	3AR
	Lamp, 24V, GE4505	8107A027	
4	Bumper, Rubber	8240A241	6
5	Bumper, Rubber	8240A242	3
6	Lamp Holder and Brush Assembly	8422B305	1
7	Brush (part of Item 6)	8240A031-01	1AR
8	Brush Spring (part of item 6)	8240A032	1AR
9	Bearing	8422A011	2
10	Retaining Ring	8422A010	2
11	Clutch Assembly and Worm Gear	8422A114	1
12	Flat Steel Washer	7072A139	1
13	Motor 12V	8422B111-05	1AR
	Motor 24V	8422B111-06	
14	Motor Bracket and Collector Ring	8422A117	1
15	Grommet	8108A018	1
16	Gasket	8422A020	1
17	Housing	8422C003	1
18	Retaining Band Assy.		
	143*012	8422C025-18	1AR
	143*024	8422C025-19	

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, series, voltage, description, and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX MODEL 143 SERIES A2 12V

PPL 0120-A2 PARTS LIST	MODEL 143 LIGHT SERIES A2 12VOLT	AUGUST 1981

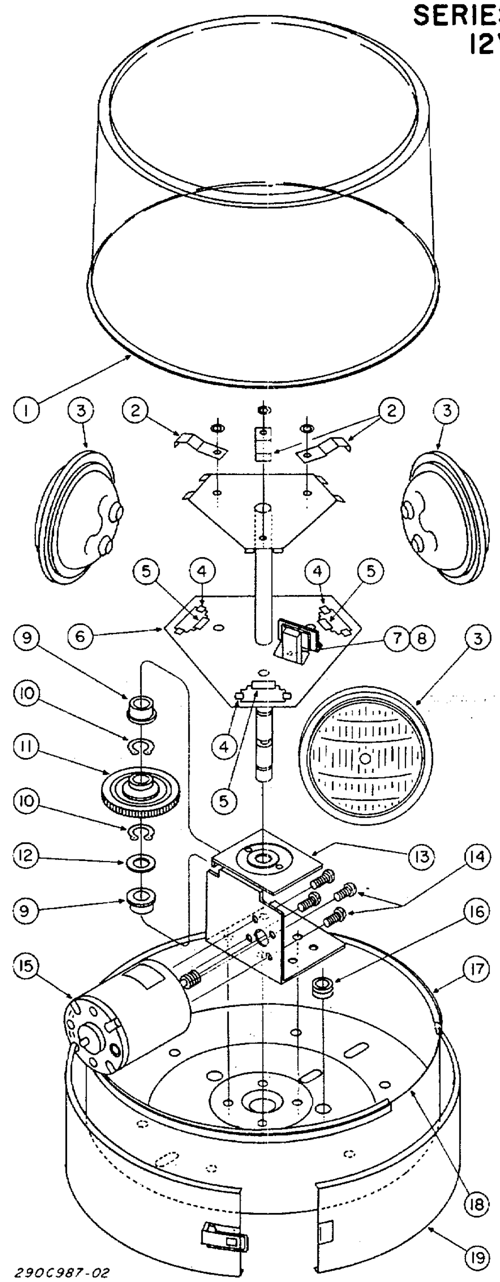
Item No.	Description	Part No.	Qty.
1	Dome, Red	8422C002-01	1AR
	Dome, Blue	8422C002-02	
	Dome, Green	8422C002-03	
	Dome, Amber	8422C002-04	
	Dome, Clear	8422C002-05	
2	Clip, Lamp	8240A016	3
3	Lamp, 12V, GE4416	8107A033	3AR
4	Bumper, Rubber	8240A241	6
5	Bumper, Rubber	8240A242	3
6	Lamp Holder & Brush Assy.	8422B305	1
7	Brush (part of item 6)	8240A031-01	1AR
8	Brush, Spring (part of item 6)	8240A032	1AR
9	Bearing	8422A011	2
10	Retaining Ring	8422A010	2
11	Clutch Assy. & Worm Gear	8422A114	1
12	Flat Steel Washer	7072A139	1
13	Motor Bracket and Collector Ring	8422A323A	1
14	6-32 x 3/8 Rd.Hd. Slt. Scr.	7006A006	4
15	Motor 12V	8422B111-25	1
16	Grommet	8108A018	1
17	Gasket	8422A020	1
18	Housing	8422C003	1
19	Retaining Band Assy. 143*012 (Series A2)	8422C025-25	1

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, series, voltage, description, and part number.

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Model 144 LIGHT, Series A1

PPL 0118 AUGUST 1981

PARTS LIST

Item No.	Description	Part No.	Qty.
1	Dome, Red	8422C002-01	1 AR
	Dome, Blue	8422C002-02	
	Dome, Green	8422C002-03	
	Dome, Amber	8422C002-04	
	Dome, Clear	8422C002-05	
2	Clip, Lamp	8240A016	4
3	Lamp, GE 4416	8107A033	4
4	Bumper, Rubber	8240A242	4
5	Bumper, Rubber	8422B241	8
6	Brush and Lamp Holder Assy.	8422B338	1
7	Brush Assy. (part of item 6)	8240A031-01	1 AR
8	Brush Spring (part of item 6)	8240A032	1 AR
9	Shaft	8422A112	1
10	Bearing	8422A011	2
11	Retaining Ring	8422A010	2
12	Clutch Assy., Worm Gear	8422A114	1
13	Flat Steel Washer	7072A139	1
14	Motor Bracket and Collector Ring	8422A117	1
15	Motor, 12V	8422B111-30	1
16	Gasket	8422A020	1
17	Housing	8422C003	1 AR
	Housing, Special	8422C003-01	
18	Retaining Band Assembly	8422C025-26	1
19	Grommet	8108A018	1
Not Shown			
	Model VB144* Mtg. Gasket	8422A042	2
	Grommet	8108A011	2
	Model VB144*012-1Z	8422C433A	
	(Visibar mounted with special motor)		
	Cover	8422C434	AR
	Visibar (with mtg. for 144 lights)	8422C435	AR

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Give model, voltage, description, and part number.

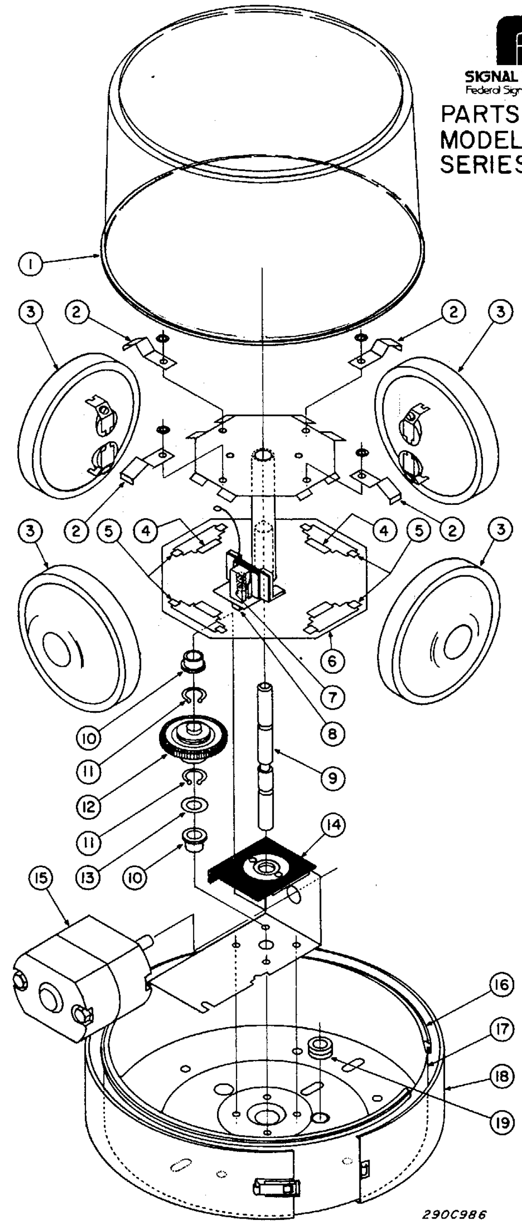
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for prices of parts.

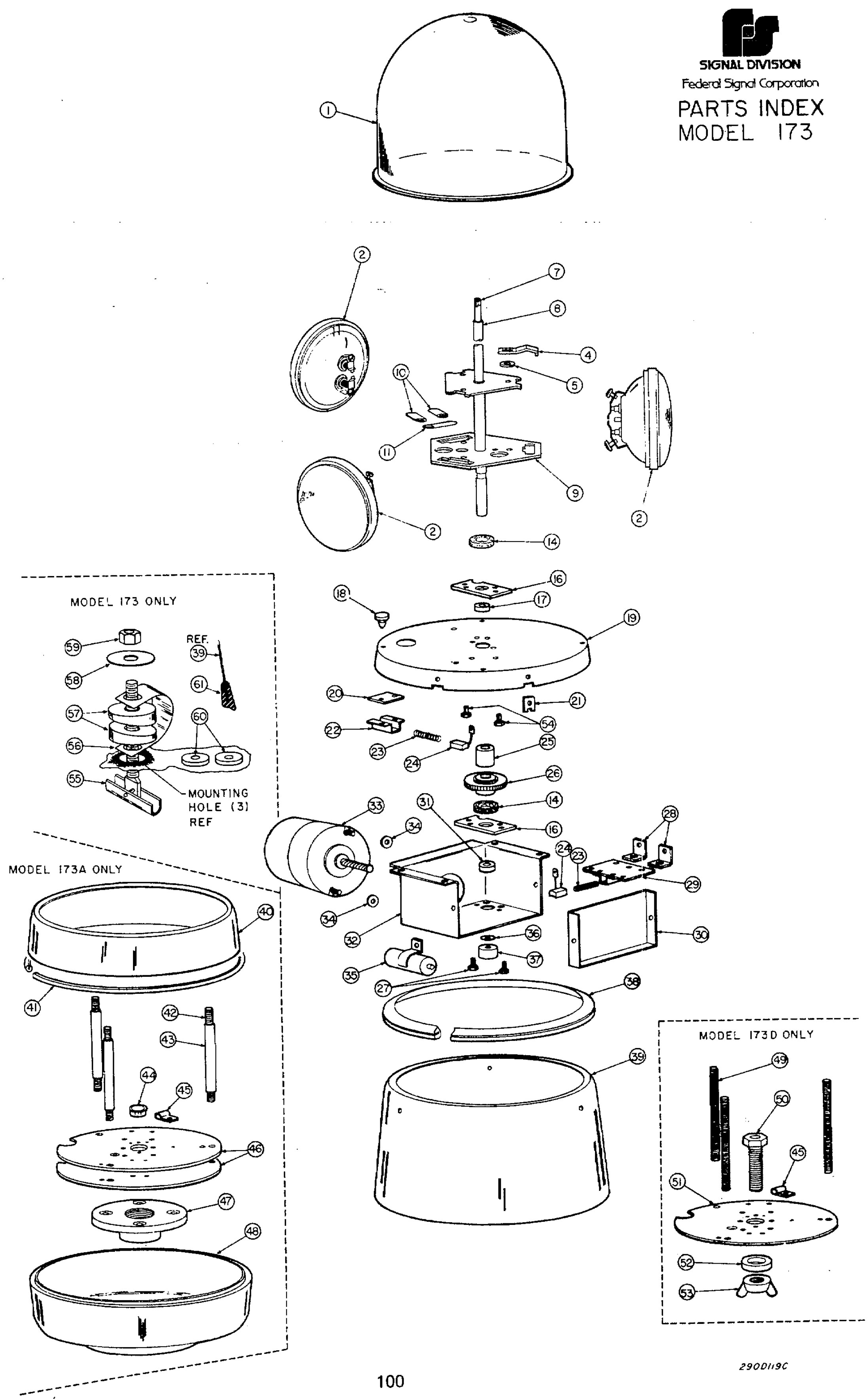
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SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX MODEL 144 SERIES A1




SIGNAL DIVISION
Federal Signal Corporation
PARTS INDEX
MODEL 173
MODEL 173 ONLY
REF.
MOUNTING
HOLE (3)
REF
MODEL 173A ONLY
MODEL 173D ONLY
290D119C

STRAT-O-RAY LIGHT
Models 173, 173A, and 173D

Index No.	Description	Part No.	Qty.
1	Plastic Dome, Red	8449C005-11	1 AR
	Plastic Dome, Blue	8449C005-12	
	Plastic Dome, Amber	8449C005-14	
	Plastic Dome, Clear	8449C005-15	
	Split Dome, Blue and Clear	8449C048-01	
	Split Dome, Amber and Red	8449C048-02	
	Split Dome, Red and Blue	8449C048-03	
	Split Dome, Amber and Blue	8449C048-04	
	Split Dome, Red and Clear	8449C048-05	
	Split Dome, Amber and Clear	8449C048-06	
2	Lamp, 6V, Clear GE 4516	8107A032	3 AR
	Lamp, 12V, Clear GE 4416	8107A033	
	Lamp, 12V, Red GE 4416R	8107A042	
	Lamp, 12V, Amber GE 4416A	8107A059	
	Lamp, 24V, Clear GE 4505	8107A027	
	Lamp, 12V, Blue H7600B	8107A116	
4	Clamp, Lamp	8240A016	3
5	Washer, Flat	8240A614	3
7	Contact Rod	8240A018	1
8	Tube, Insulator	8240A020	1
9	Lamp Holder Assembly	8240B128	1
10	Bumper, Lamp	8240A241	6
11	Bumper, Lamp	8240A242	3
14	Washer, Oil Retaining	7072A123	2
16	Holder, Bearing	8240A009	2
17	Oilite Bearing, Upper	8240A034-01	1
18	Bumper, Grommet Type (for plastic domes)	8108A016	4
19	Plate, Base	8240C005	1
20	Spacer, Brush Holder	8240A030	1
21	Nut, Tinnerman Speed	7060A000	6
22	Tube, Brush	8240A029	1
23	Spring, Brush	8240A032	2
24	Brush Assembly	8240A031	2
25	Slip Ring, Upper	8240A014	1
26	Worm Gear and Clutch Assembly	8422A114	1
27	6-32 x 1/4 Screw, Taptite	7011A061-04	2
28	Terminal	8240A021	1
29	Brush Holder Assembly	8240A191	1
30	Gear Box Cover	8240B010	1
31	Oilite Bearing, Lower	8240A034-02	1
32	Gear Box	8240C008	1
33	Motor, 6V	8240A420-07	1 AR
	Motor, 12V	8422B111-11	
	Motor, 24V (use motor adaptor plate)	8422B111-28	
	Motor, Adaptor Plate Assembly	8240A631	AR
34	Spacer, Motor	7072A131	2
35	Filter, 24V	8226A186	1 AR
36	Washer, Insulating	7072A124	2
37	Slip Ring, Lower	8240A019	1
38	Gasket, Dome	8240A004	1
39	Skirt, 5 inch (standard)	8240C243-02	1 AR
	Skirt, 6-1/2 inch	8240C250-01	
	Skirt, 7-1/2 inch	8240C258-01	
	Skirt, 11 inch	8240D587-01	
40	Upper Cover, Chrome	8240C247-01	1
41	Gasket	8240A107	1
42	Stud	7009A007-64	3
43	Spacer	8240A104	3
44	Bushing	8240A231	1
45	Clamp, Wire	8240A072	1
46	Plate, Base	8240B139-02	2
47	Flange	8240A170	1
48	Lower Cover, Chrome	8240C106	1
49	Stud	7009A007-88	3
50	Stud, Mounting	8240A137	1
51	Plate, Base	8240B139-01	1
52	Washer, Rubber	7072A125	1
53	Nut, Wing	7064A004	1
54	8-32 x 3/8 Screw, Taptite	7011A056-06	2
55	1/4-20 Bolt, Toggle	8240A041	3
56	Ground Strip	8240A023	1
57	Washers, Tapered Rubber	8240A022	6
58	Washer, Steel	7072A026	3
59	1/4-20 Nut, Hex Head	7059A018	3
60	Grommets	8108A005	2
61	Gasket (for bottom of skirt after trimming to mounting surface contour).	8240A007-01	1

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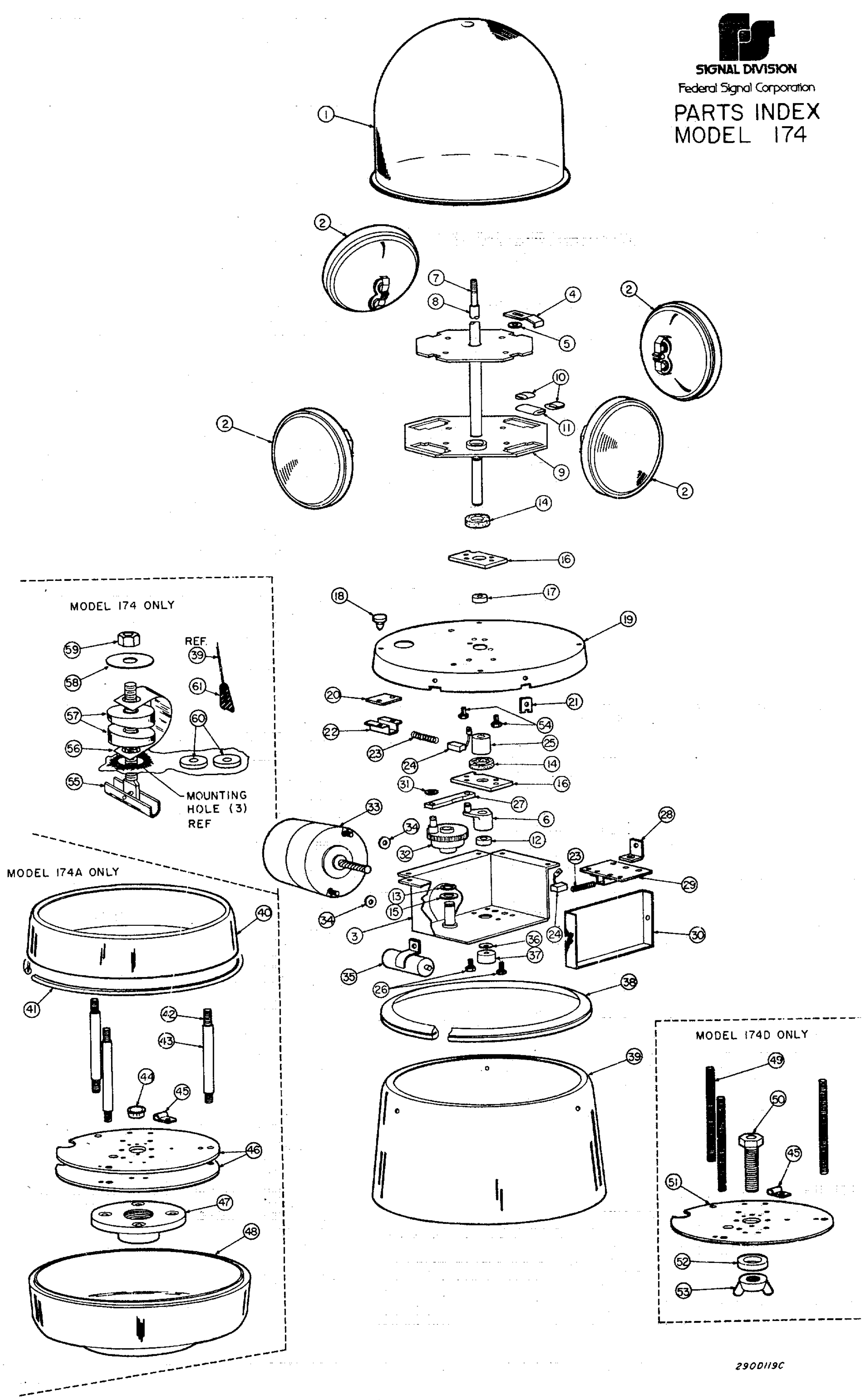
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Federal Signal Corporation

PARTS INDEX
MODEL 174



FEDERAL SUPER BEACON RAY

PPL 0007 — Models 174, 174A, and 174D — AUGUST 1981

PARTS LIST

Index No.	Description	Part Nuo	Qty.
1	Plastic Dome, Red	8449C005-11	1 AR
	Plastic Dome, Blue	8449C005-12	
	Plastic Dome, Amber	8449C005-14	
	Plastic Dome, Clear	8449C005-15	
	Split Dome, Blue and Clear	8449C048-01	
	Split Dome, Amber and Red	8449C048-02	
	Split Dome, Red and Blue	8449C048-03	
	Split Dome, Amber and Blue	8449C048-04	
	Split Dome, Red and Clear	8449C048-05	
	Split Dome, Amber and Clear	8449C048-06	
2	Lamp, 6V, Clear GE 4516	8107A032	4 AR
	Lamp, 12V, Clear GE 4416	8107A033	
	Lamp, 12V, Red GE 4416R	8107A042	
	Lamp, 24V, Clear GE 4505	8107A027	
	Lamp, 12V, Blue H7600B	8107A116	
3	Gear and Box Assembly	8240A423	1
4	Clamp, Lamp	8240A016	4
5	Washer, Flat	8240A614	4
6	Crank Arm Assembly	8240A433	1
7	Contact Rod	8240A018	1
8	Tube, Insulator	8240A020	1
9	Lamp Holder Assembly	8240B403	1
10	Bumper, Lamp	8240A241	8
11	Bumper, Lamp	8240A242	4
12	Oilite Bearing, Lower	8240A034-02	1
13	Ring, Retaining	8253A011	1
14	Washer, Oil Retaining	7072A123	2
15	Washer, Flat	7072A130	1
16	Holder, Bearing	8240A009	2
17	Oiltite Bearing, Upper	8240A034-01	1
18	Bumper, Grommet Type (for plastic dome)	8108A016	4 AR
19	Plate, Base	8240C005	1
20	Spacer, Brush Holder	8240A030	1
21	Nut, Tinnerman Speed	7060A000	7
22	Holder, Brush	8240A029	1
23	Spring, Brush	8240A032	2
24	Brush Assembly	8240A031	2
25	Slip Ring, Upper	8240A014	1
26	6-32 x 1/4 Screw, Taptite	7011A061-04	2
27	Connecting Rod, Lever Arm	8240A407	1
28	Terminal	8240A021	1
29	Brush Holder Assembly	8240A191	1
30	Gear Box Cover	8240B010	1
31	Ring, Retaining	8240A416	2
32	Worm Gear Assembly	8240A424	1
33	Motor, 6V	8240A420-06	1 AR
	Motor, 12V	8240A420-12	
	Motor, 24V	8240A420-24	
34	Spacer, Motor	7072A128	2
35	Filter, 24V	8226A186	1 AR
36	Washer, Insulating	7072A124	2
37	Slip Ring, Lower	8240A019	1
38	Gasket, Dome	8240A004	1
39	Skirt, 5 inch (standard)	8240C243-02	1 AR
	Skirt, 6-1/2 inch	8240C250-01	
	Skirt, 7-1/2 inch	8240C258-01	
	Skirt, 11 inch	8240D587-01	
40	Upper Cover, Chrome	8240C247-01	1
41	Gasket	8240A107	1
42	Stud	7009A007-64	3
43	Spacer	8240A104	3
44	Bushing	8240A231	1
45	Clamp, Wire	8240A072	1
46	Plate, Base	8240B139-02	2
47	Flange	8240A170	1
48	Lower Cover, Chrome	8240C106	1
49	Stud	7009A007-88	3
50	Stud, Mounting	8240A137	1
51	Plate, Base	8240B139-01	1
52	Washer, Rubber	7072A125	1
53	Nut, Wing	7064A004	1
54	8-32 x 3/8 Screw, Taptite	7011A056-06	2
55	1/4-20 Bolt, Toggle	8240A041	3
56	Ground Strip	8240A023	1
57	Washers, Tapered Rubber	8240A022	6
58	Washer, Steel	7072A026	3
59	1/4-20 Nut, Hex Head	7059A018	3
60	Grommets	8108A005	2
61	Gasket (for bottom of skirt after trimming to mounting surface contour).	8240A007-01	1
Not Shown			
	Plug (for Model 174D)	8240A165	AR

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description, and part number.

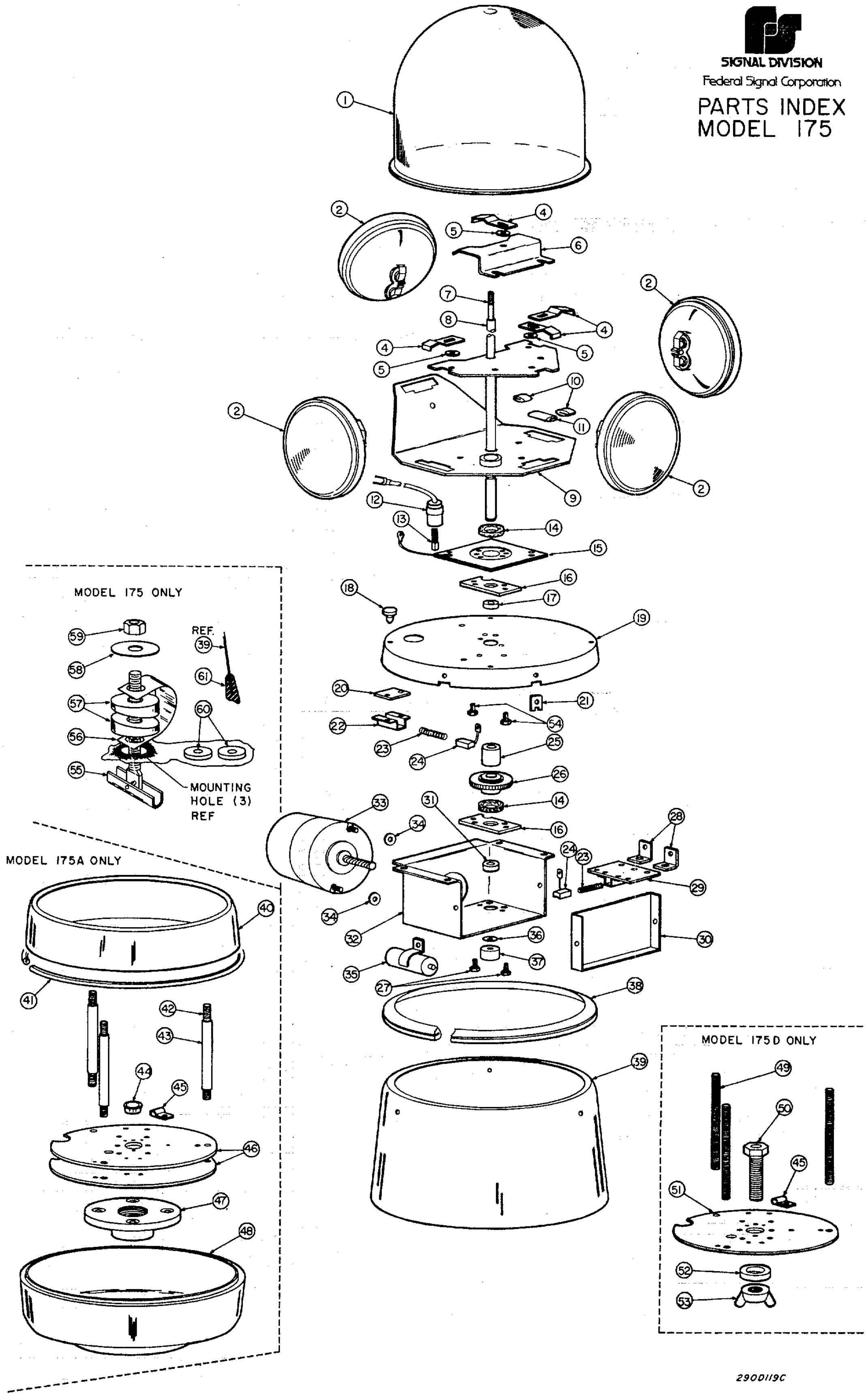
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Federal Signal Corporation

PARTS INDEX MODEL 175



104

FEDERAL STRAT-O-RAY
Models 175, 175A, and 175D

Index No.	Description	Part No.	Qty
1	Lexan Dome, Red	8449C005-11	1 AR
	Lexan Dome, Blue	8449C005-12	
	Lexan Dome, Green	8449C005-13	
	Lexan Dome, Amber	8449C005-14	
	Lexan Dome, Clear	8449C005-15	
2	Lamp, 12V, Clear GE 4416	8107A033	2 AR
	Lamp, 12V, Red GE 4416R	8107A042	
	Lamp, 24V, Clear GE 4505	8107A027	
	Lamp, 24V, Red	8107A060	
	Lamp, 12V, Blue H 7600B	8107A116	
4	Clamp, Lamp	8240A016	4
5	Washer, Flat	8240A614	4
6	Bracket, Auxillary	8240A511	1
7	Contact Rod	8240A018	1
8	Tube, Insulator	8240A020	1
9	Lamp Holder Assembly	8240B512	1
10	Bumper, Lamp	8240A241	8
11	Bumper, Lamp	8240A242	4
12	Brush Holder and Lead Assembly	8240A213	1
13	Brush and Spring	8240A050	1
14	Washer, Oil Retaining	7072A123	2
15	Collector Ring Assembly	8240A505	1
16	Holder, Bearing	8240A009	2
17	Oilite Bearing, Upper	8240A034-01	1
18	Bumper, Grommet Type (for lexan domes)	8108A016	4
19	Plate, Base	8240C005	1
20	Spacer, Brush Holder	8240A030	1
21	Nut, Tinnerman Speed	7060A000	7
22	Tube, Brush	8240A029	1
23	Spring, Brush	8240A032	2
24	Brush Assembly	8240A031	2
25	Slip Ring, Upper	8240A014	1
26	Worm Gear and Clutch Assembly	8422A114	1
27	6-32 x 1/4 Screw, Taptite	7011A061-04	2
28	Terminal	8240A021	2
29	Brush Holder Assembly	8240A191	1
30	Cover, Gear Box	8240B010	1
31	Oilite Bearing, Lower	8240A034-02	1
32	Gear Box	8240C008	1
33	Motor, 12V	8240A420-12	1 AR
	Motor, 24V	8240A420-24	
34	Spacer, Motor	7072A131	2
35	Filter, 24V	8226A186	1 AR
36	Washer, Insulating	7072A124	2
37	Slip Ring, Lower	8240A019	1
38	Gasket, Dome	8240A004	1
39	Skirt, 5 inch (standard)	8240C243-02	1 AR
	Skirt, 6-1/2 inch	8240C250-01	
	Skirt, 7-1/2 inch	8240C258-01	
40	Upper Cover, Chrome	8240C247-01	1
41	Gasket	8240A107	1
42	Stud	7009A007-64	3
43	Spacer	8240A104	3
44	Bushing	8240A231	1
45	Clamp, Wire	8240A072	1
46	Plate, Base	8240B139-02	2
47	Flange	8240A170	1
48	Lower Cover, Chrome	8240C106	1
49	Stud	7009A007-88	3
50	Stud, Mounting	8240A137	1
51	Plate, Base	8240B139-01	1
52	Washer, Rubber	7072A125	1
53	Nut, Wing	7064A004	1
54	8-32 x 3/8 Screw, Taptite	7011A056-06	2
55	1/4-20 Bolt, Toggle	8240A041	3
56	Ground Strip	8240A023	1
57	Washers, Tapered Rubber	8240A022	6
58	Washer, Steel	7072A026	3
59	1/4-20 Nut, Hex Head	7059A018	3
60	Grommets	8108A005	2
61	Gasket (for bottom of skirt after trimming to mounting surface contour).	8240A007-01	1

DO NOT ORDER PARTS BY INDEX NUMBER.
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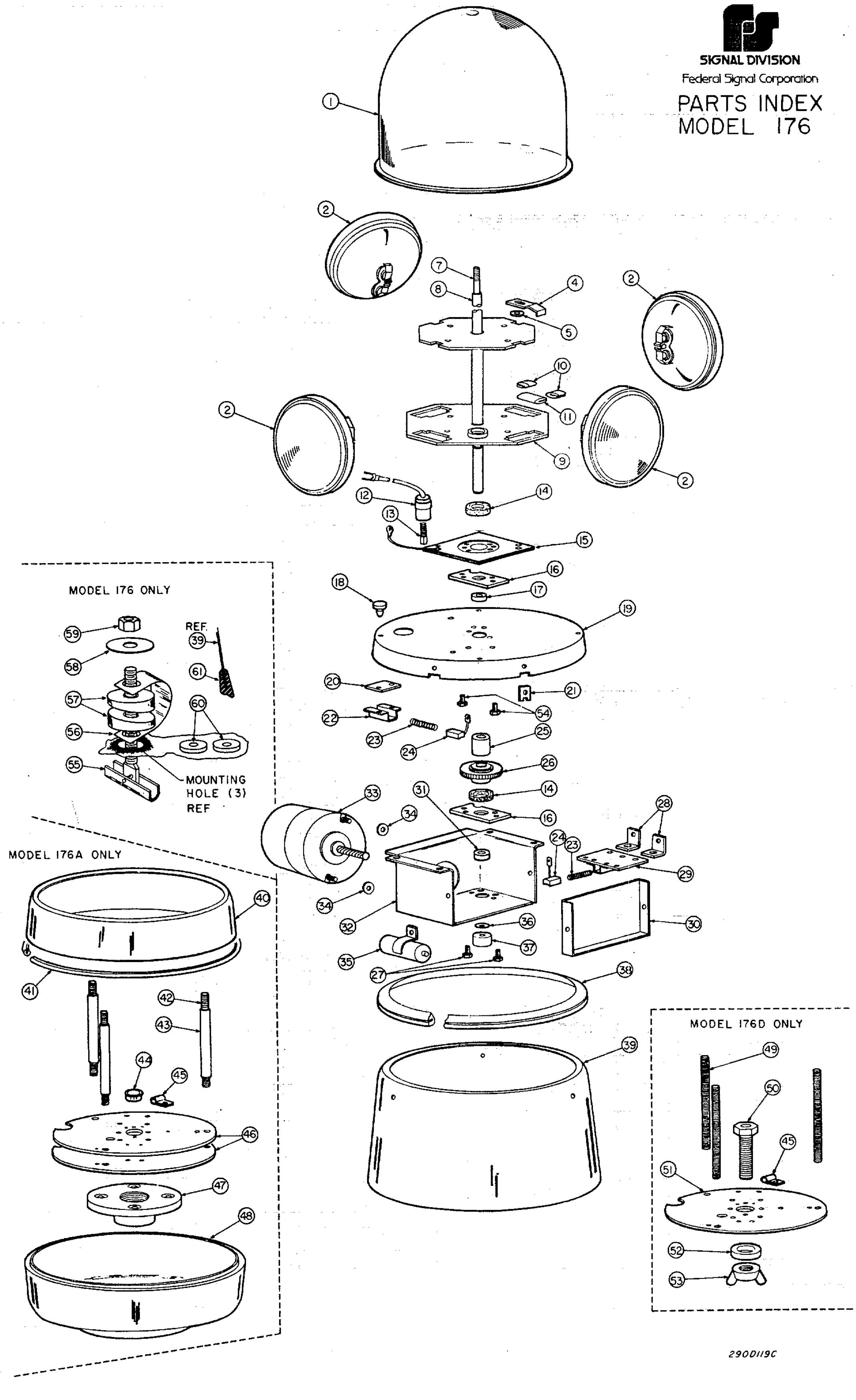
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PARTS INDEX
MODEL 176



Index No.	Description	Part No.	Qty.
1	Lexan Dome, Red	8449C005-11	1 AR
	Lexan Dome, Blue	8449C005-12	
	Lexan Dome, Green	8449C005-13	
	Lexan Dome, Amber	8449C005-14	
	Lexan Dome, Clear	8449C005-15	
2	Lamp, 12V, Clear GE 4416	8107A033	4 AR
	Lamp, 12V, Red GE 4416R	8107A042	
	Lamp, 12V, Blue H 7600B	8107A116	
4	Clamp, Lamp	8240A016	4
5	Washer, Flat	8240A614	4
7	Contact Rod	8240A018	1
8	Tube, Insulator	8240A020	1
9	Lamp Holder Assembly	8240B518	1
10	Bumper, Lamp	8240A241	8
11	Bumper, Lamp	8240A242	4
12	Brush Holder and Lead Assembly	8240A213	1
13	Brush and Spring	8240A050	1
14	Washer, Oil Retaining	7072A123	2
15	Collector Ring Assembly	8240A505	1
16	Holder, Bearing	8240A009	2
17	Oilite Bearing, Upper	8240A034-01	1
18	Bumper, Grommet Type (for lexan dome)	8108A016	4 AR
19	Plate, Base	8240C005	1
20	Spacer, Brush Holder	8240A030	1
21	Nut, Tinnerman Speed	7060A000	3
22	Tube, Brush	8240A029	1
23	Spring, Brush	8240A032	2
24	Brush Assembly	8240A031	2
25	Slip Ring, Upper	8240A014	1
26	Worm Gear and Clutch Assembly	8422A114	1
27	6-32 x 1/4 Screw, Taptite	7011A061-04	2
28	Terminal	8240A021	2
29	Brush Holder Assembly	8240A191	1
30	Cover, Gear Box	8240B010	1
31	Oilite Bearing, Lower	8240A034-02	1
32	Gear Box	8240C008	1
33	Motor, 12V	8240A420-12	1
34	Spacer, Motor	7072A131	2
36	Washer, Insulating	7072A124	2
37	Slip Ring, Lower	8240A019	1
38	Gasket, Dome	8240A004	1
39	Skirt, 5 inch (standard)	8240C243-02	1 AR
	Skirt, 6-1/2 inch	8240C250-01	
	Skirt, 7-1/2 inch	8240C258-01	
	Skirt, 11 inch	8240B587-01	
40	Upper Cover, Chrome	8240C247-01	1
41	Gasket	8240A107	1
42	Stud	7009A007-64	3
43	Spacer	8240A104	3
44	Bushing	8240A231	1
45	Clamp, Wire	8240A072	1
46	Plate, Base	8240B139-02	2
47	Flange	8240A170	1
48	Lower Cover, Chrome	8240C106	1
49	Stud	7009A007-88	3
50	Stud, Mounting	8240A137	1
51	Plate, Base	8240B139-01	1
52	Washer, Rubber	7072A125	1
53	Nut, Wing	7064A004	1
54	8-32 x 3/8 Screw, Taptite	7011A056-06	2
55	1/4-20 Bolt, Toggle Short	8240A041	3 AR
	1/4-20 Bolt, Toggle, Long (9")	8424A015	
56	Ground Strip	8240A023	1
57	Washers, Tapered Rubber	8240A022	6
58	Washer, Steel	7072A026	3
59	1/4-20 Nut, Hex Head	7059A018	3
60	Grommets	8108A005	2
61	Gasket (for bottom of skirt after trimming to mounting surface contour).	8240A007-01	1

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description, and part number.

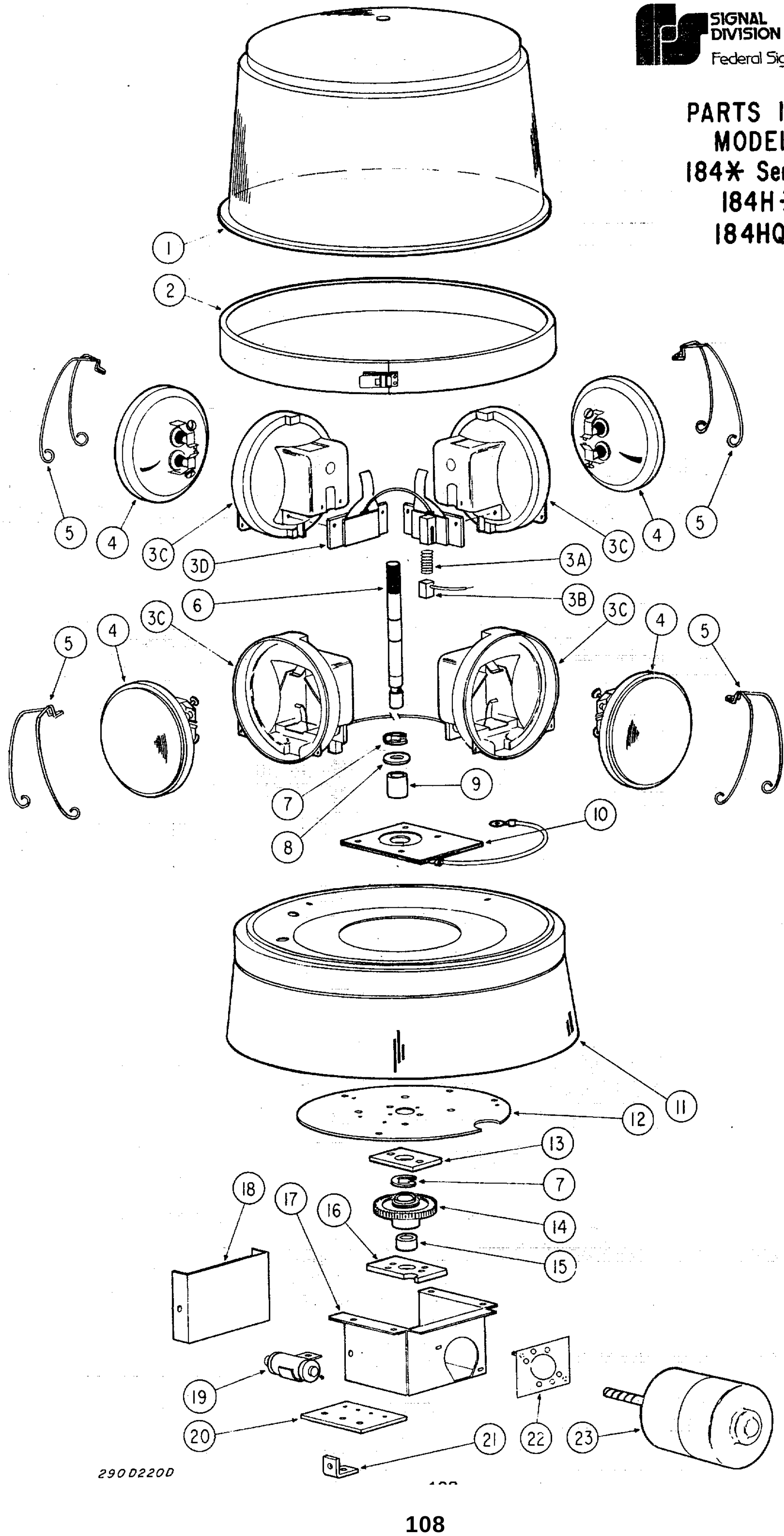
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PARTS INDEX
MODELS:
184* Series A3
184H*
184HQ*



290D220D

Item No.	Description	Part No.	184	184 H	184 HQ
1	Dome, Acrylic, Red	8434D101-01	1 AR	1 AR	1 AR
	Dome, Acrylic, Blue	8434D101-02			
	Dome, Acrylic, Green	8434D101-03			
	Dome, Acrylic, Amber	8434D101-04			
	Dome, Acrylic, Clear	8434D101-05			
	Dome, Acrylic, Blue CIE	8434D101-06			
	Split Dome, Acrylic, Red and Blue	8434C102-01			
	Split Dome, Acrylic, Blue and Amber	8434C102-02			
	Split Dome, Acrylic, Red and Clear	8434C102-03			
	Split Dome, Acrylic, Amber and Red	8434C102-04			
	Split Dome, Acrylic, Amber and Clear	8434C102-05			
2	Retaining Band Assembly	8424C010	1	1	1
3	Lamp Holder Assembly (consists of items 3C, 3D, and 5)	8424C052	1	1	1
3A	Spring	8240A032	2	2	2
3B	Brush	8240A031-01	2	2	2
3C	Holder, Lamp	8424B012	4	4	4
3D	Brush Holder and Contact Spring Assembly (includes items 3A and 3B)	8424A006	2	2	2
4	Lamp 6V Clear GE 4516	8107A032	4 AR	0	0
	Lamp 12V Clear GE 4416	8107A033		4	0
	Lamp 12V Blue GE 4416B	8107A057		0	0
	Lamp 12V Amber GE 4416A	8107A059		0	0
	Lamp 12V Red GE 4416R	8107A042		0	0
	Lamp 24V Clear GE 4505	8107A027		0	0
	Lamp 12V Clear H 7600 Q	8107A103	0	0	4
5	Clamp Wire, Lamp	8422B016	4	4	4
6	Shaft	8424A004	1	1	1
7	Ring, Retaining	8422A010	2	2	2
8	3/8 Washer, Flat	7072A139	1	1	1
9	Bearing, Upper, AN8273	8240A034-01	1	1	1
10	Collector Ring Assembly	8424A002	1	1	1
11	Housing (Skirt) SS	8424C055-01	1	0	0
	Housing (Skirt) SS	8424C055-02	0	1	1
12	Plate, Base	8240B139	1	1	1
13	Support, Bearing	8424A014	1	1	1
14	Worm Gear and Clutch Assembly	8422A114	1	1	1
15	Bearing, Lower, A63015	8240A034-02	1	1	1
16	Holder, Bearing	8240A009	1	1	1
17	Box, Gear	8240C008	1	1	1
18	Cover, Gear Box	8240B010	1	1	1
19	Filter, 24V (for filtered models only)	8226A186	AR	0	0
20	Insulator	8240A130	1	1	1
21	Terminal	8240A021	1	1	1
22	Motor Adaptor Plate Assembly	8240A631	1	1	1
23	Motor 6V	8240A420-07	1 AR	0	0
	Motor 12V	8422B111-30		1	1
	Motor 24V	8240A420-24		0	0
Not Shown					
	Motor Mounting Screws	7000A251-05	4	4	4
	Switch	8240A033	1	1	1
	Bolt, Toggle, Short	8240A041	3AR	3AR	3AR
	Bolt, Toggle, Long (9")	8424A015			
	Gasket, Housing (Skirt) Bottom	8240A007-01	1	1	1
	Strap, Grounding (for toggle bolt)	8240A023	1	1	1
	Washer, Tapered, Rubber	8240A022	6	6	6
	Grommet (used for mounting)	8108A005	1	1	1
	Accessory Kit	8424A017	1	0	0
	Accessory Kit	8424A017-01	0	1	1

DO NOT ORDER BY ITEM NUMBER.
Give model, series, voltage, description, and part number.

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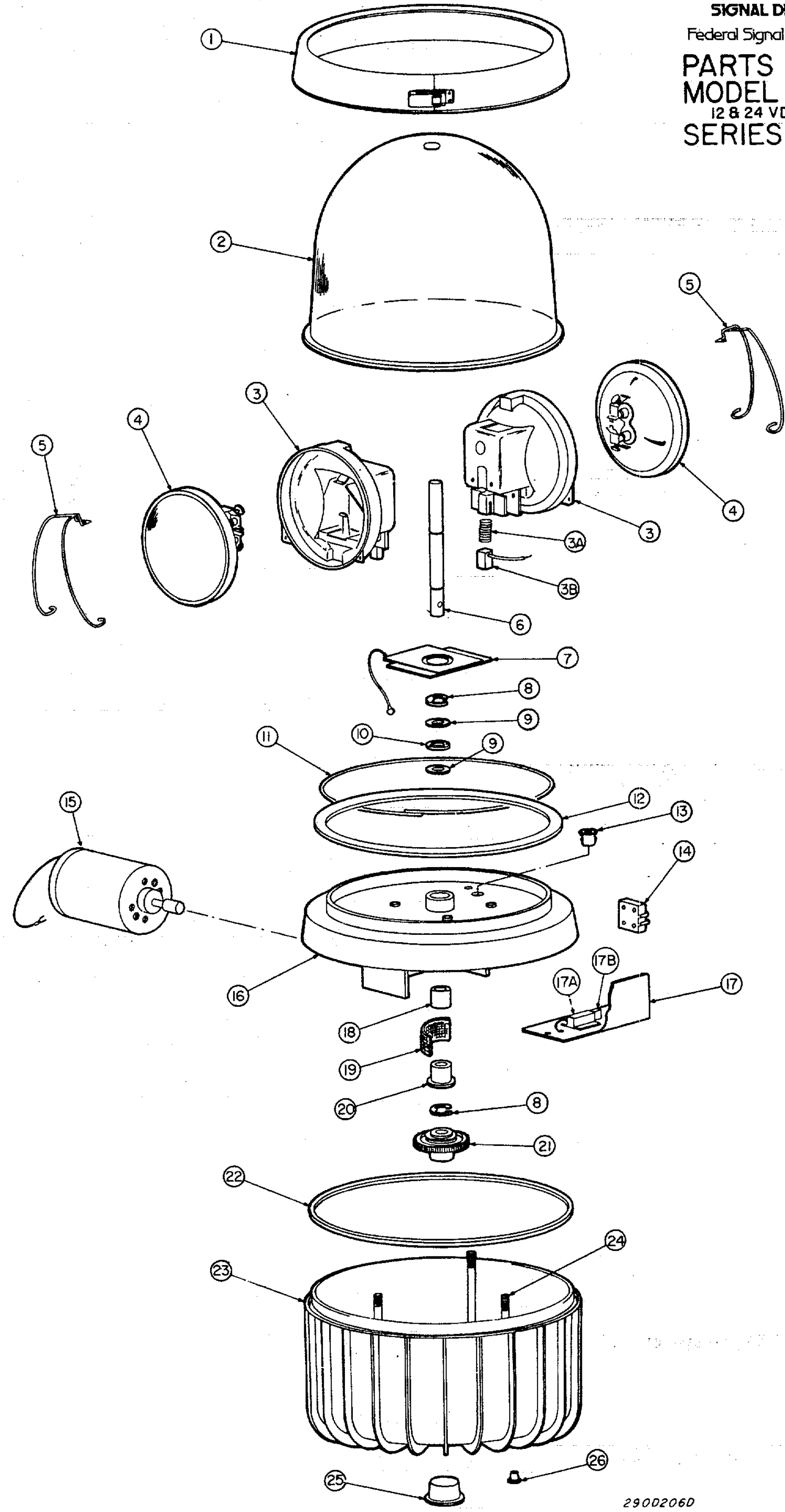
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PARTS INDEX
MODEL 312
12 & 24 VDC
SERIES A1



Index No.	Description	Part No.	Qty.
1	Retaining Band Assy.	8449C017	1
2	Dome, Red Acrylic	8449C005-01	1AR
	Dome, Amber Acrylic	8449C005-04	
	Dome, Clear Acrylic	8449C005-05	
	Dome, Blue Acrylic	8449C005-02	
	Dome, Red Plastic	8449C005-11	
	Dome, Blue Plastic	8449C005-12	
	Dome, Amber Plastic	8449C005-14	
	Dome, Clear Plastic	8449C005-15	
	Split Dome, Blue and Clear	8449C048-01	
	Split Dome, Amber and Red	8449C048-02	
	Split Dome, Red and Blue	8449C048-03	
	Split Dome, Amber and Blue	8449C048-04	
	Split Dome, Red and Clear	8449C048-05	
	Split Dome, Amber and Clear	8449C048-06	
3	Lamp Holder Assy. (includes items 3A and 3B)	8422B019	2
3A	Spring	8240A032	2
3B	Brush	8240A031-01	2
4	Lamp, 6V, 60W	8107A032	2AR
	Lamp, 12V, 60W	8107A066	
	Lamp, 24V, 50W	8107A027	
	Lamp, 75v, 75W	8107A055	
5	Lamp Clamp Wire	8422B016	2
6	Shaft	8449A026	1
7	Collector Ring Assy.	8449A012	1
8	Retaining Ring	8422A010	2
9	Thrust Washer	8449A021	2
10	Thrust Retainer	8449A022	1
11	Spacer Ring (Plastic Dome Only)	8449A040	1AR
12	Dome Gasket	8449C006-02	1
13	Snap Bushing	8449A010	1
14	Terminal Block	8253A119	1
15	Motor, 6V	8422B111-04	1AR
	Motor, 12V	8422B111-25	
	Motor, 24V	8422B111-26	
	Motor, 64V to 75V	8422B111-10	
16	Base Plate	8449D003-01	1
17	Gear Box Cover and Brush Holder (includes items 17A and 17B)	8449A020	1
17A	Spring	8240A032	1
17B	Brush	8240A031	1
18	Sleeve Bearing	8240A034-01	1
19	Felt Oil Pad	8449A011	1
20	Flange Bearing	8449A013	1
21	Worm Gear Clutch Assy.	8449A025	1
22	Gasket	8449C007	1
23	Housing	8449D002	1
24	Stud	7009A007-79	3
25	Plug, Tapered	8449A016	1
26	Plug, Tubing	8449A014	3
Not Shown	Shock Mounting Conversion Kit	8459A079	AR

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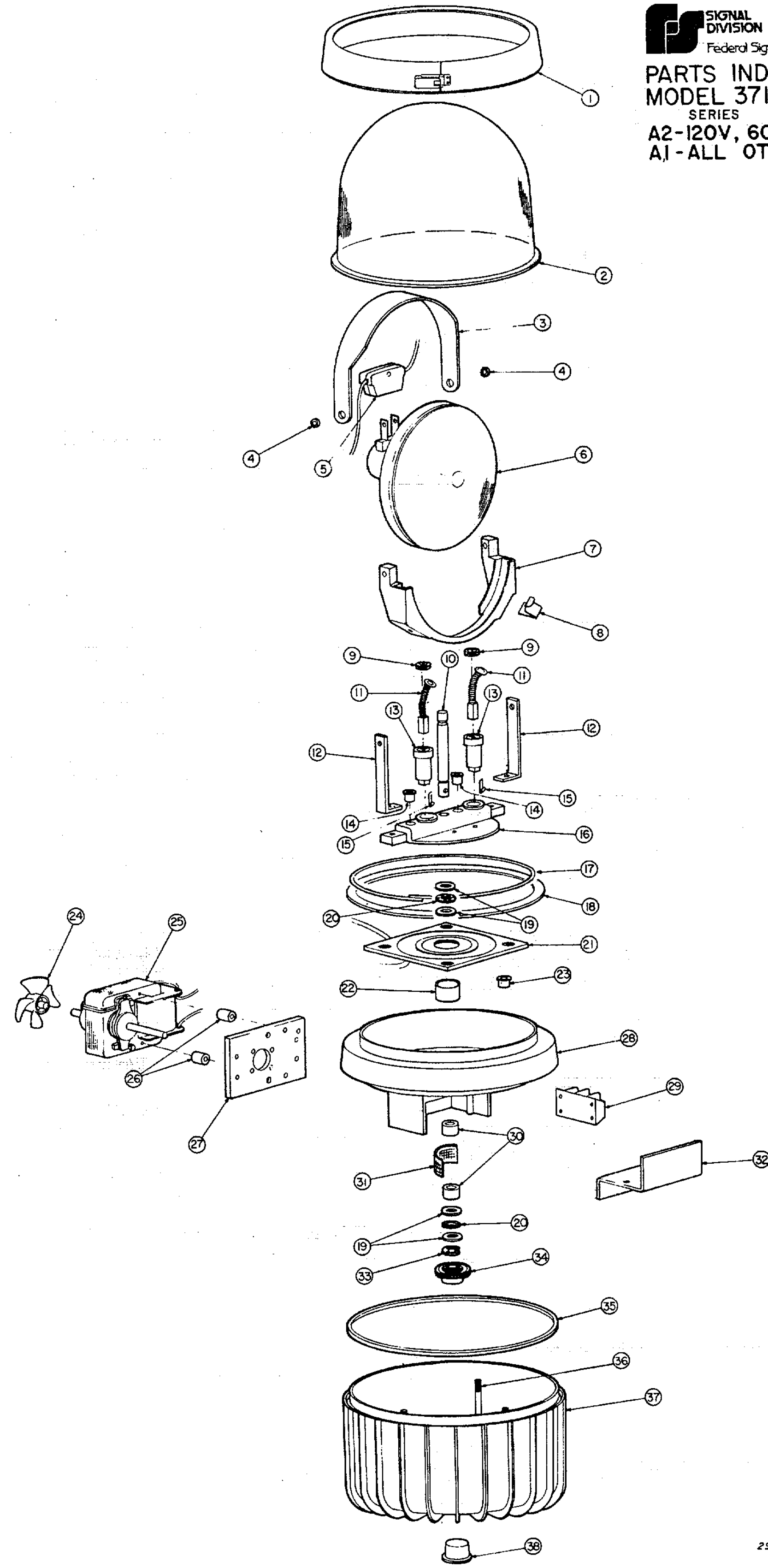
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PARTS INDEX
MODEL 371 L

SERIES
A2-120V, 60 Hz
A,1 - ALL OTHERS



MODEL 371L LIGHT
SERIES
A2 - 120V, 60Hz
A1 - All Others

Index	Description	Part No.	Qty.
1	Retaining Band Assembly	8449C017-01	1
2	Plastic Dome, Red	8449C005-11	1AR
	Plastic Dome, Amber	8449C005-14	
	Plastic Dome, Clear	8449C005-15	
	Plastic Dome, Blue	8449C005-12	
	Plastic Dome, Magenta	8449C005-16	
3	Lamp Support Assembly	8442B010	1
4	Lamp Support Spacer	8442A011	2
5	Connector	8442B037	1
6	Lamp (120 VAC (all), 250VAC (25Hz), and 125VDC units only)	8442A039	1AR
	Lamp (12VDC units only) (#4436)	8107A069	
	Lamp (32VDC units only) (150 PAR 46/1)	8442A041	
	Lamp (250VDC units only) (150 PAR 46/3)	8107A073	
7	Lamp Holder	8459C004	1
8	Lower Lamp Spring	8442A012	2
9	Brush Cap	8442A026	2
10	Shaft	8459A005	1
11	Brush and Spring	8442A028	2
12	Lamp Holder Bracket	8459A007	1
13	Brush Holder	8442A025	2
14	Snap Bushing	8459A028	2
15	Brush Holder Clip	8442A027	2
16	Lamp Holder Support	8459C003	1
17	Spacer Ring for Plastic Dome	8449A040	1
18	Dome Gasket for Plastic Dome	8449C006-02	1
19	Thrust Washer	8449A021	4
20	Thrust Retainer	8449A022	2
21	Collector Ring Assembly	8459A012	1
22	Insulator	8459A006	1
23	Snap Bushing	8449A010	1
24	Fan	8459A018	1
25	Motor (120VAC, 60Hz units only)	8459B014	1AR
	Motor (12VDC units only)	8422B111-08	
	Motor (32VDC and 250VDC units only)	8422B111-09	
	Motor (125VDC Series A1 Units Only) Replacement Kit See "Not Shown Listing Below*		
	Motor (75VDC and 125VDC units) Series A2	8422B111-31	
26	Spacer	8459A015	2
27	Motor Adapter Plate	8459A009	1
28	Base Plate (all, except 250VAC and DC units)	8459D002-01	1AR
	Base Plate (250VAC, 25Hz units only)	8459D002-04	
	Base Plate (250VDC units only)	8459D002-01A	
29	Terminal Block (all, except 250 VAC (25 Hz), 125VDC, and 250VDC units)	8442A032	1AR
	Terminal Block (125VDC and 250VDC)	8442A033	
	Terminal Block (250VAC, 25Hz units only)	8459A052	
30	Sleeve Bearing	8240A034-01	2
31	Felt Oil Pad	8449A011	1
32	Gear Box Cover	8459B008-01	1
33	Retaining Ring	8422A010	2
34	Worm Gear Clutch Assembly	8459A017	1
35	Gasket	8449C007	1
36	Stud	8459A019	3
37	Housing	8449D002	1
38	Tapered Plug	8449A016	1
Not Shown	Resistor, 400 Ohm, Adjustable, 12W (120VAC, 25Hz and 250VAC, 25Hz units only	8459A020	AR
	Resistor, 5 Ohm, 25W (250VAC, 25Hz units only)	8449A045	
	Resistor, 2-160 Ohm, 160W in parallel (250VAC, 25Hz units only)	8442A062	
	Resistor, 15 Ohm, 25W (125VDC, Series A1 units only)	8459A047	
	Resistor, 300 Ohm, 20W (125VDC, Series A2 units only)	8459A082	
	Resistor, 60 Ohm, 50W (250 VDC units only)	8459A062	
	Resistor, 80 Ohm, 25W (250VDC units only)	8459A063	
	Shock Mounting Accessories Kit	8459A076	
	Shock Mounting Conversion Kit	8459A079	
	*Motor Replacement Kit (125VDC Series A1 only), includes 8422B111-10 Motor, 8459A082 Resistor and Instruction Sheet 8459A084	8459A083	

DO NOT ORDER PARTS BY INDEX NUMBER.
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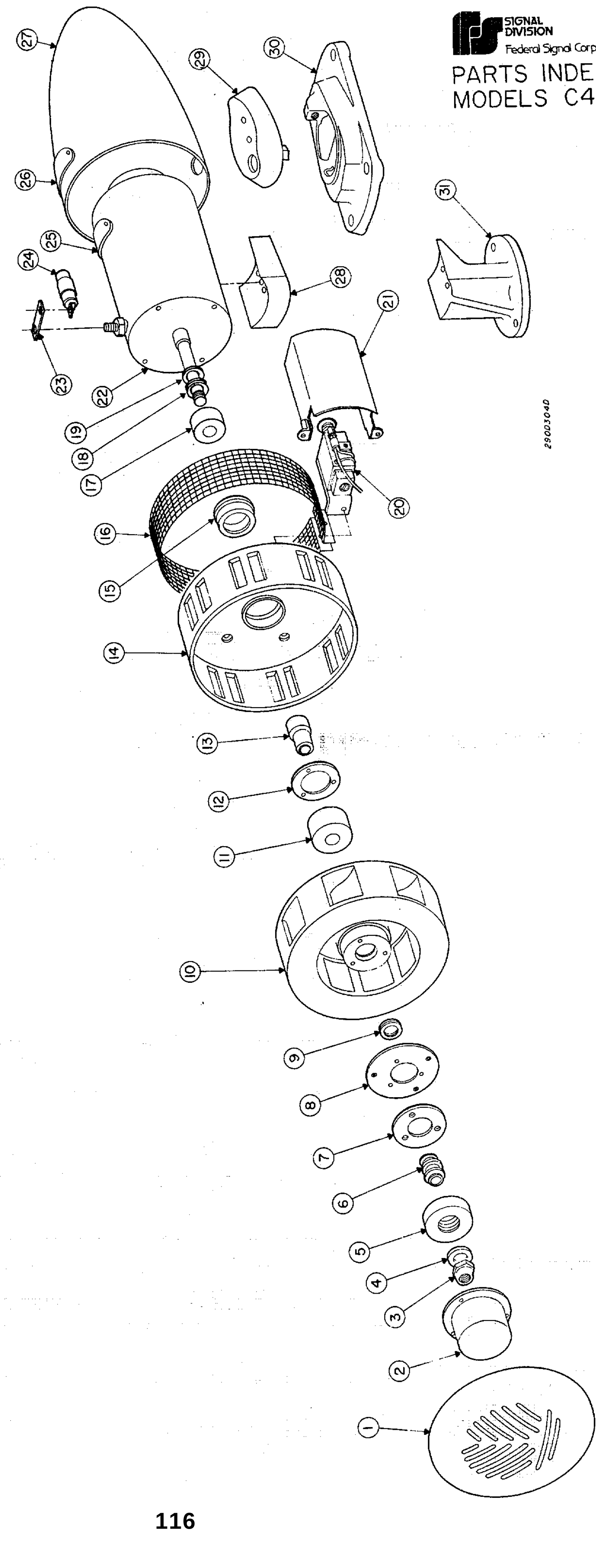
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SIRENS

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PARTS INDEX
MODELS C4B & C5GB



MODELS C4B AND C5GB SIREN ASSEMBLY

Index No.	Description	Part No.	Qty.
1	Grille, Front (Model C5GB - Chrome)	8283C025-0C	1 AR
	Grille, Front (Model C4B - Gray Enamel)	8283C025-1G	
2	Cap, Clutch	8427A011	1
3	Stop Nut, 9/16 -18	7058A036	1
4	Washer	7072A140	1
5	Nut, Clutch (Model C5GB-Cronak, Model) (Model C4B- Bronze)	8427A003	1
6	Screw, Clutch (Model C5GB- Cronak (Model C4B-Steel)	8427A002	1
7	Disc, Clutch	8427A005	1
8	Mounting Disc Assembly, Clutch Cap	8427A016	1
9	Washer	7072A158	2
10	Rotor	8126C015	1
11	Bearing	8126A017	1
12	Ring, Retaining	8088A001	1
13	Bushing, Spacer	8427A014	1
14	Stator (Model C5GB - Chrome)	H1215-01C	1 AR
	Stator (Model C4B-Gray Enamel)	H1215-01G	
15	Bushing, Bearing	8283A168	1
16	Stator Guard	8126A043	1
17	Bearing	8126A014	1
18	Spacer	7072A152	2
19	Washer, Steel	7072A150	1
20	Brake Assembly, 12 Volt	8280B003A-01	1
21	Cover, Brake (Model C4B Only)	8209B009A	1
22	Motor, 12 Volt (for filtered units)	8154C005-01	1 AR
	Motor, 12 Volt (for unfiltered units)	8154D002-01	
23	Strap, Filter	8204A034	1 AR
24	Filter	8259A015	1 AR
25	Nameplate (Model C4B)	H1324	1 AR
26	Nameplate (Model C5GB)	H1335	1 AR
27	Housing (Model C5GB)	H5205-01	1
28	Block, Filler (Model C5GB)	8126B016	1
29	Adapter (Model C5GB)	H7873-01	1
30	Base (Model C5GB)	H7844-0E	1
31	Base (Model C4B)	8209C010-UA	1
Not	Switch, Foot	H5027	1
Shown	Brush Set for Item 21 (brake)	8283A685	AR

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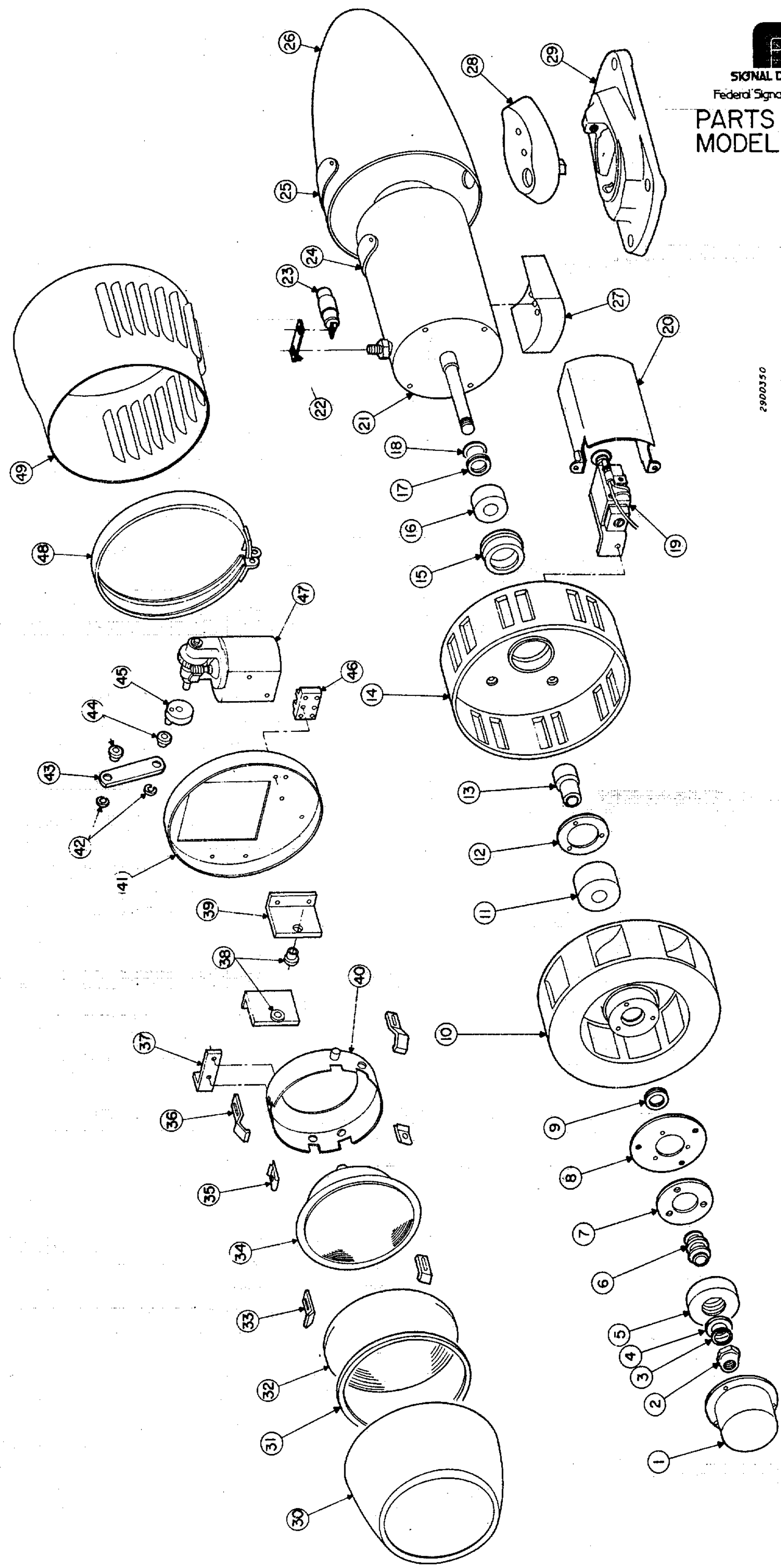
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PARTS INDEX MODEL C6



Index No.	Description	Part No.	Qty.
1	Cap, Clutch	8427A011	1
2	Stop Nut, 9/16-18	7058A036	1
3	Lockwasher, 9/16	7074A054	2
4	Washer	7058A140	1
5	Nut, Clutch	8427A003	1
6	Screw, Clutch	8427A002	1
7	Disc, Clutch	8427A005	1
8	Clutch Cap Mounting Disc. Assy.	8427A016	1
9	Washer	7072A158	2
10	Rotor	8126C015	1
11	Bearing	8126A017	1
12	Ring, Retaining	8088A001	1
13	Bushing, Spacer	8427A014	1
14	Stator	H1215-01	1
15	Bushing, Bearing	8283A168	1
16	Bearing	8126A014	1
17	Spacer	7072A152	2
18	Washer	7072A150	1
19	Brake Assy., 12-volt	8280B003A-01	1AR
20	Cover, Brake (used only when item 26 is not supplied)	8209B009A	1AR
21	Motor, 12-volt (for filtered siren)	8154D002-01	1AR
	Motor, 12-volt (for filtered siren)	8154C005-01	1AR
22	Strap, Filter (for filtered siren)	8204A034	1AR
23	Filter	8259A015	1AR
24	Nameplate	H1335-02	1AR
25	Nameplate	H1335	1AR
26	Housing, Chrome	H5205-01	1
27	Block, Filler	8126B016	1
28	Adapter	H7873-01	1
29	Base, Fender	H7844-OE	1
30	Cover, Front	H7613	1
31	Gasket	8176B002	1
32	Lens, Red	H7843-01	1AR
	Lens, Blue	H7843-02	
	Lens, Clear	H7843-03	
33	Clip	8253A104	3
34	Bulb, 12-volt	8107A026	1
35	Speed Nut	8240A054	3
36	Clamp, Lamp	8240A016	3
37	Lamp Link Bracket Assy.	8253A114	1
38	Bearing	8253A115	2
39	Plate, Hinge	8253A107	2
40	Lamp Holder Assy.	8253A112	1
41	Plate, Base	8253B101	1
42	Ring, Retaining	8253A118	2
43	Link	8253A111	1
44	Bearing	8253A116	2
45	Cam Assy.	8253A113	1
46	Terminal Block	8253A119	1
47	Motor, 12-volt	8253B117	1
48	Ring, Retaining	H7616-OA	1
49	Ring, Adapter	H7620	1
Not Shown	Base, Pedestal	8209C010	1AR
	Light Accessory with 12-volt Flasher	8209A024	
	Brake Accessories	8209A023	
	Plate, Reinforcing	8080B001	1AR
	Switch, Foot	H5027	1AR
	Brush set for item 21	8283A685	

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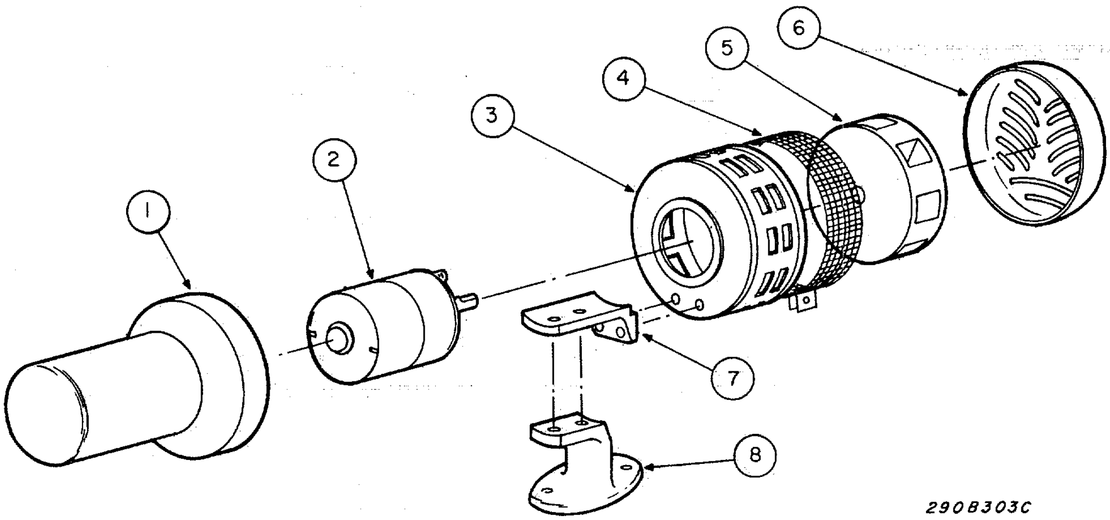
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PARTS INDEX
MODEL EG



PPL 0026 MODEL EG SIREN AUGUST 1981
PARTS LIST

Index No.	Description	Part No.	Qty.
1	Housing, Enamel	H1101-0E-0G	1 AR
	Housing, Chrome	H1101-0E-0C	
2	Motor, 12 Volt	8169B010	1 AR
	Motor, 24 Volt	8169B011	
3	Stator, Enamel	H7506-01G	1 AR
	Stator, Chrome	H7506-01C	
4	Stator Guard	8126A045	1
5	Rotor	8170B204	1
6	Grill, Enamel	H7086-0G	1 AR
	Grill, Chrome	H7086-0C	
7	Filler Block	H7559	1
8	Siren Bracket, Enamel	H1113-0A-0G	1 AR
	Siren Bracket, Chrome	H1113-0A-0C	
Not Shown	Foot Switch	H5027	1

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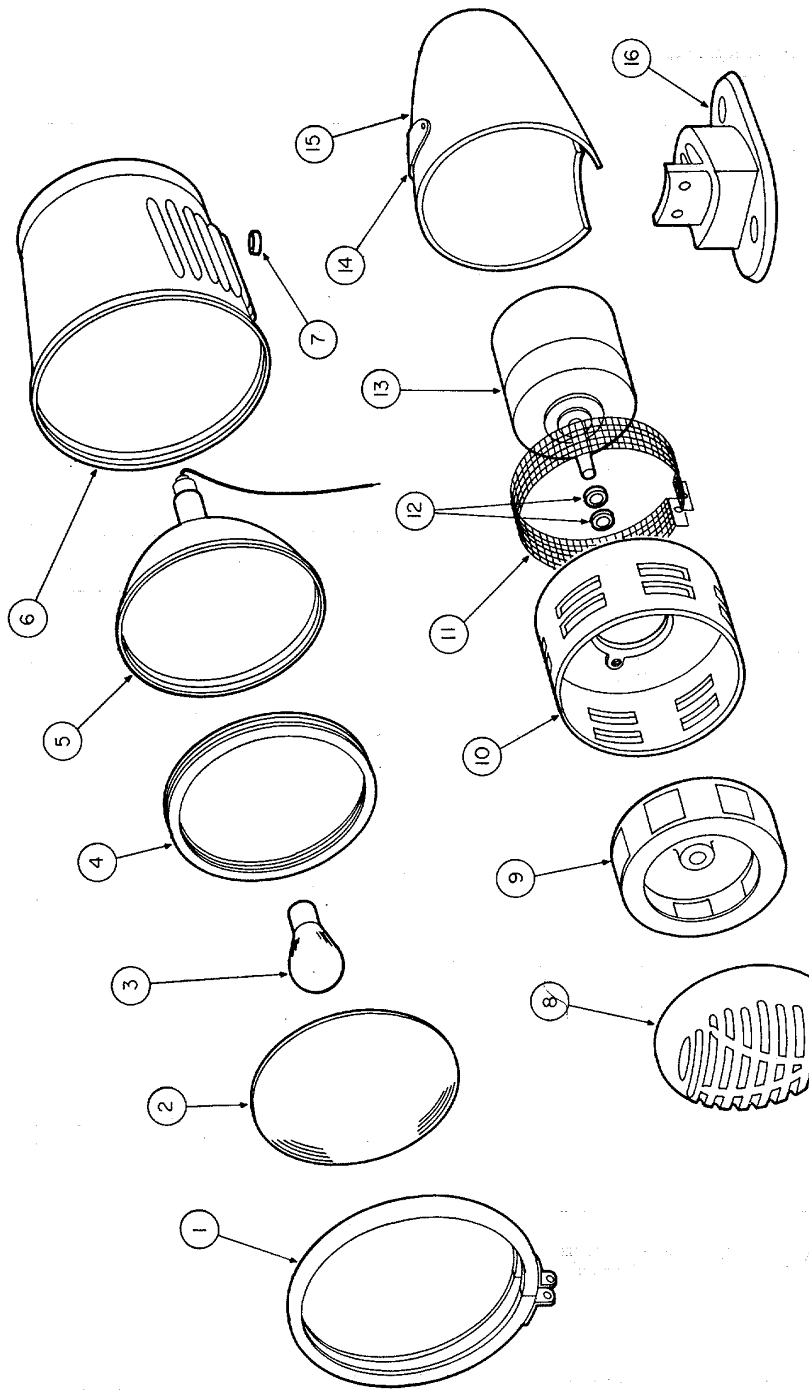
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PARTS INDEX
MODELS VG, VL & O



290C307C

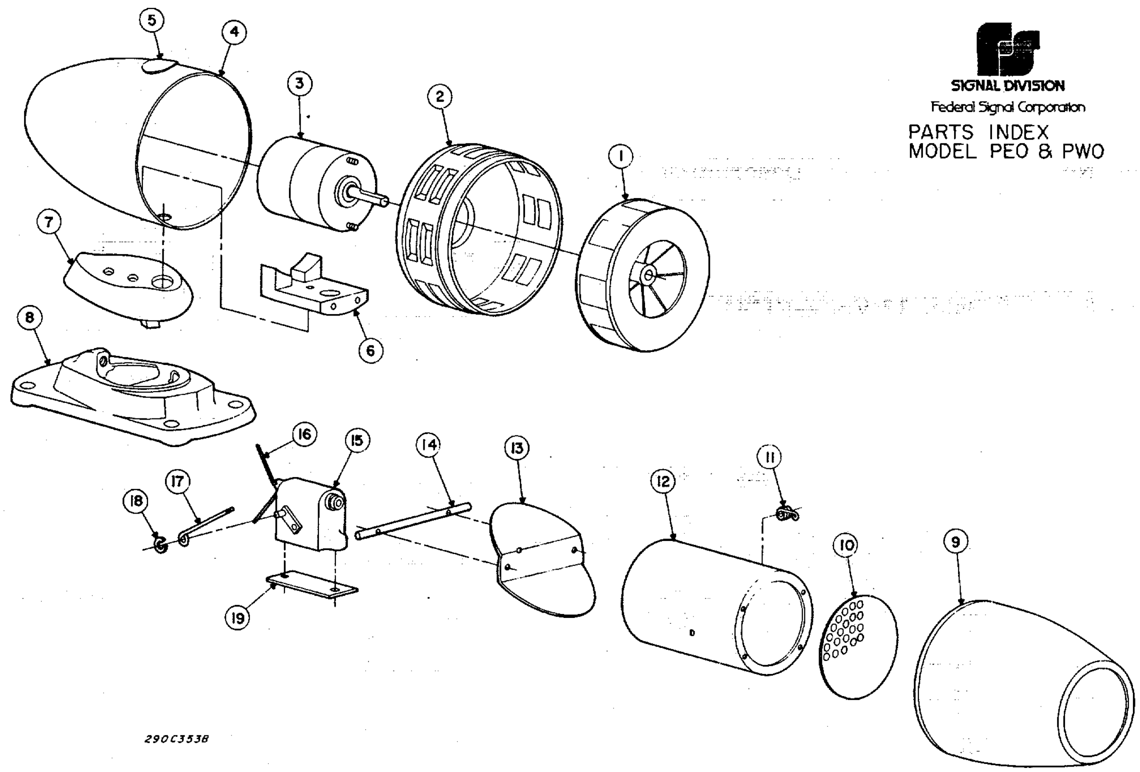
Index No.	Description NOTE : Items 1 thru 7 are part of Model VL only.	Part No.	Qty.
1	Rim Assembly	8170B020	1
2	Lens	8283A458	1
3	Bulb, 12 Volt GE1141	8440A102	1 AR
	Bulb, 24 Volt #309	8107A041	
4	Gasket	8170A019	3
5	Reflector Assembly	8179B038	1
6	Light Adapter	8170B023	1
7	Grommet	H7204	1
8	Grille, Chrome (not used on Model VL)	H5410-OC	1 AR
	Grille, Gray Enamel (not used on VL)	H5410-OG	
9	Rotor	8179A046-02	1
10	Stator, 12 Volt (Chrome)	H5502-OC	1 AR
	Stator, 12 Volt (Gray Enamel)	H5502-OG	
	Stator, 24 Volt (Chrome)	H5502-02C	
	Stator, 24 Volt (Gray Enamel)	H5502-02G	
11	Stator Guard	8126A044	1
12	Spacer	8179A027	2
13	Motor, 12 Volt	8169B014	1 AR
	Motor, 24 Volt	8283A697	
14	Nameplate, 24 Volt	H1324	1 AR
	Nameplate, 12 Volt (Model O)	H1324-03	
	Nameplate, 12 Volt (Model VG)	H1324-04	
	Nameplate, 12 Volt (Model VL)	H1324-05	
15	Housing, Chrome	H5683-OC	1 AR
	Housing, Gray Enamel	H5683-OG	
16	Base, Chrome	8179C007-OC	1 AR
	Base, Gray Enamel	8179C007-OG	
Not Shown	Switch, Toggle (Model VL)	8226A109	1
	Flasher, 12 Volt (Model VL)	8226A187-01	1 AR
	Flasher, 24 Volt (Model VL)	8226A187-02	
	Grommet (Model VL)	8108A008	1
	Switch, Foot	H5027	1

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SIGNAL DIVISION
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PARTS INDEX
MODEL PEO & PWO

PPL0028
PARTS LIST

MODELS PEO AND PWO

AUGUST 1981

Index No.	Description	Part No.	Qty.
1	Rotor	8170B204A	1
2	Stator	8170D201	1
3	Motor, 12-volt	8169B010	1AR
	Motor, 24-volt	8169B011	
4	Housing, Chrome	H7441N-02-0C	1
5	Nameplate	H1324	1
6	Filler Block (for LN & Autolite Motor)	H7842	AR
	Filler Block (for K & D Motor)	8170B016	
7	Adapter, Chrome	H7874	AR
8	Bracket, Universal Fender	H7844-OE2P	AR
9	Adapter	8284C031-01	1
10	Screen	8184A018	1
11	Spring	8284A021	1
12	Inner Housing Assy.	8284B022	1
13	Shutter	8284C012	1
14	Shaft, Shutter	8284A006	1
15	Gear Box Assy.	8284B034	1
16	Wire, Drive	8284A033	1
17	Rod, Connecting	8284A009	1
18	Ring, Retaining	8284A024	1
19	Gasket	8284A011	1
Not Shown	Roof Bracket, Universal	H7844-0D	AR
	Base	H5052	AR
	Pulsator Assy. (consists of items 11 thru 15,17,18, 19 and misc. hardware)	8284D001-0A	1

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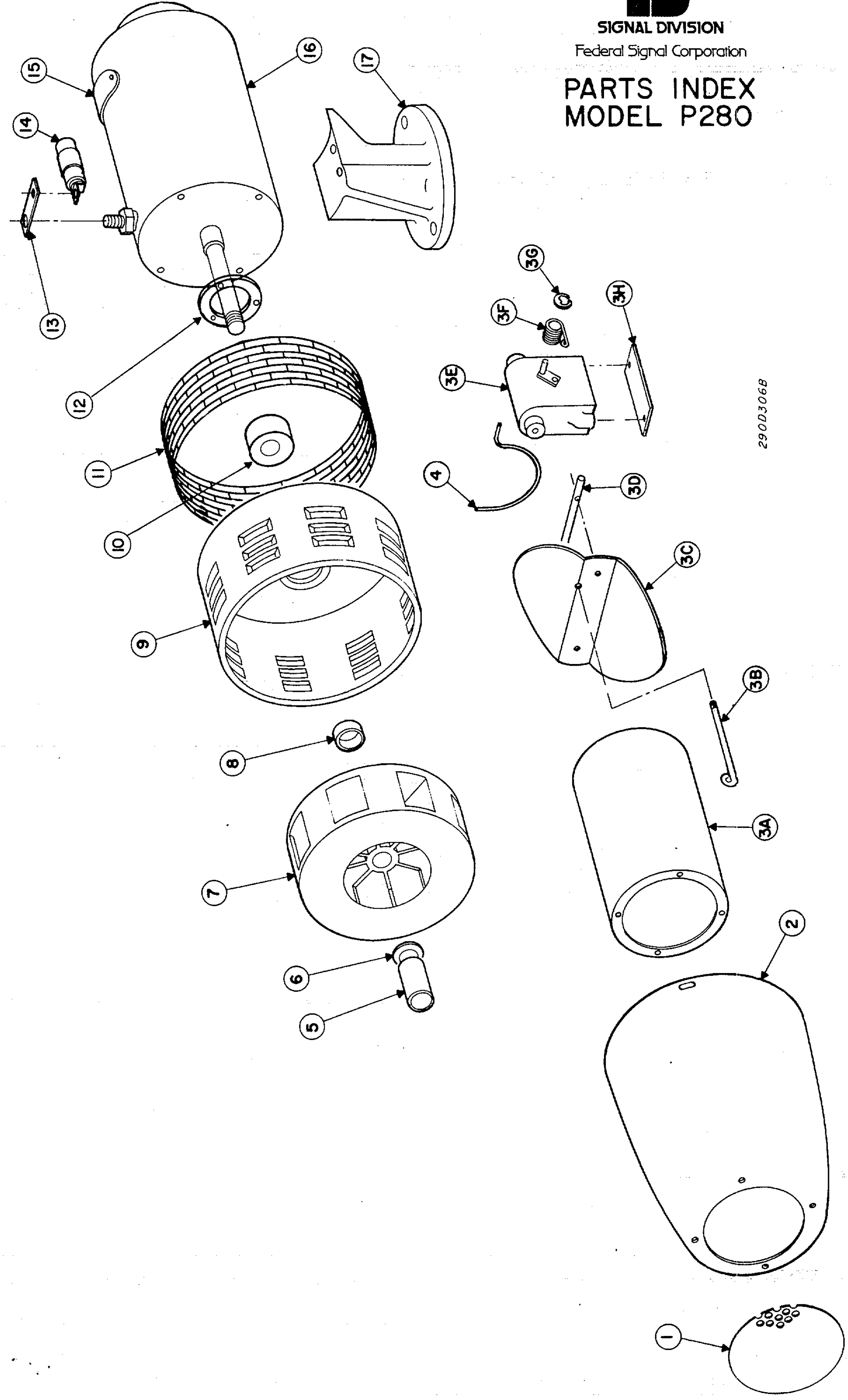
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Federal Signal Corporation

PARTS INDEX MODEL P280



MODEL P280 PULSATOR ASSY.

PPL0029
PARTS LIST

AUGUST 1981

Index No.	Description	Part No.	Qty.
1	Screen	8284A018-01	1
2	Adapter	8284C014	1
3	Pulsator Assy. (consists of items 3A thru 3H)	8284D001-0A	1
3A	Inner Housing Assy.	8284B022	1
3B	Connecting Rod	8284A009	1
3C	Shutter	8284C012	1
3D	Shaft, Shutter	8284A006	1
3E	Gear Box Assembly	8284A034	1
3F	Spring	8284A021	1
3G	Ring, Retaining	8284A024	1
3H	Gasket	8284A011	1
4	Wire, Drive	8284A023	1
5	Tube, Spacer	H6846-01	1
6	Washer	7072A158	1
7	Rotor	8204B010	1
8	Spacer	8204A013	1
9	Stator	H5202-01	1
10	Bearing	8126A014	1
11	Strator Guard	8204C044-OG	1
12	Ring, Retaining	8088A001	1
13	Strap, Filter	8204A034	1AR
14	Filter (for filtered units only)	8259A015	1AR
15	Nameplate	H1324	1
16	Motor, 12-volt (for unfiltered units)	8154D002-01	1AR
	Motor, 12-volt (for filtered units)	8154C005-01	
17	Base	8209C010	1
Not Shown	Switch, Foot	H5027	1
	Grommet	8108A002	1
	Brush set for item 15	8283A685	

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.

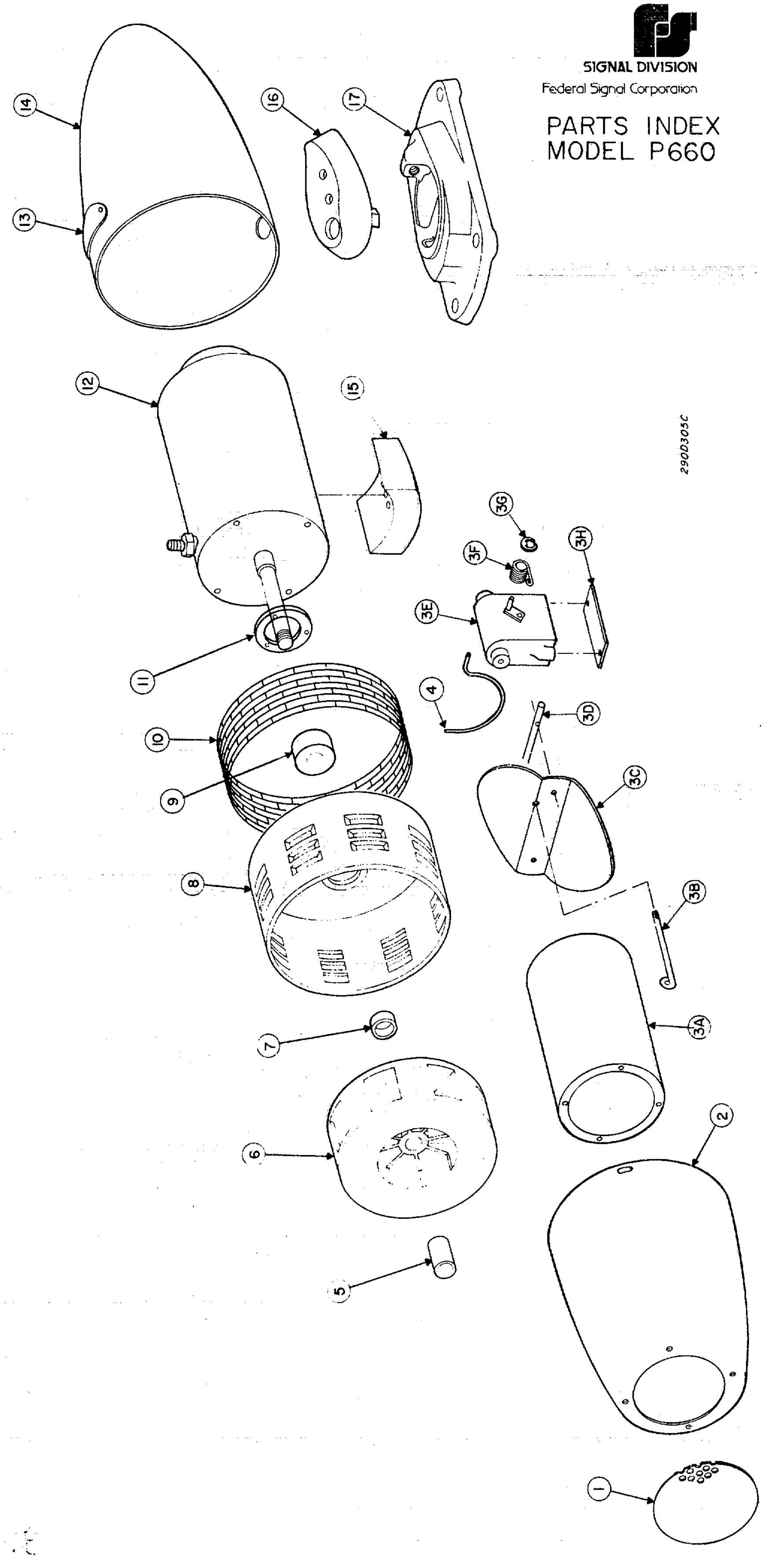
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SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX
MODEL P660



MODEL P660
PULSATOR ASSEMBLY

Index No.	Description	Part No.	Qty.
1	Screen	8284A018-01	1
2	Adapter	8284C014-01	1
3	Pulsator Assy. (consists of items 3A thru 3H)	8284D001-0A	1
3A	Inner Housing Assy.	8284B022	1
3B	Connecting Rod	8284A009	1
3C	Shutter	8284C012	1
3D	Shaft, Shutter	8284A006	1
3E	Gear Box Assembly	8284B034	1
3F	Spring	8284A021	1
3G	Ring, Retaining	8284A024	1
3H	Gasket	8284A011	1
4	Wire, Drive	8284A023	1
5	Spacer, 15/16-inch	H6846-01	1AR
6	Rotor	8204B010	1
7	Spacer	8204A013	1
8	Stator	H5202-02	1
9	Bearing, Ball	8126A014	1
10	Strator Guard	8204C044-OG	1
11	Retaining Ring, Bearing	8088A001	1
12	Motor, 12-volt	8154D002-01	1
13	Nameplate	H1335	1
14	Housing	H5205-01	1
15	Block, Filler	8126B016	1
16	Adapter	H7873-01	1AR
17	Bracket, Universal	H7844-0E	1AR
Not Shown	Base	8283C751	1AR
	Insulator	8283A784	1
	Brush set for item 18	8283A685	

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.

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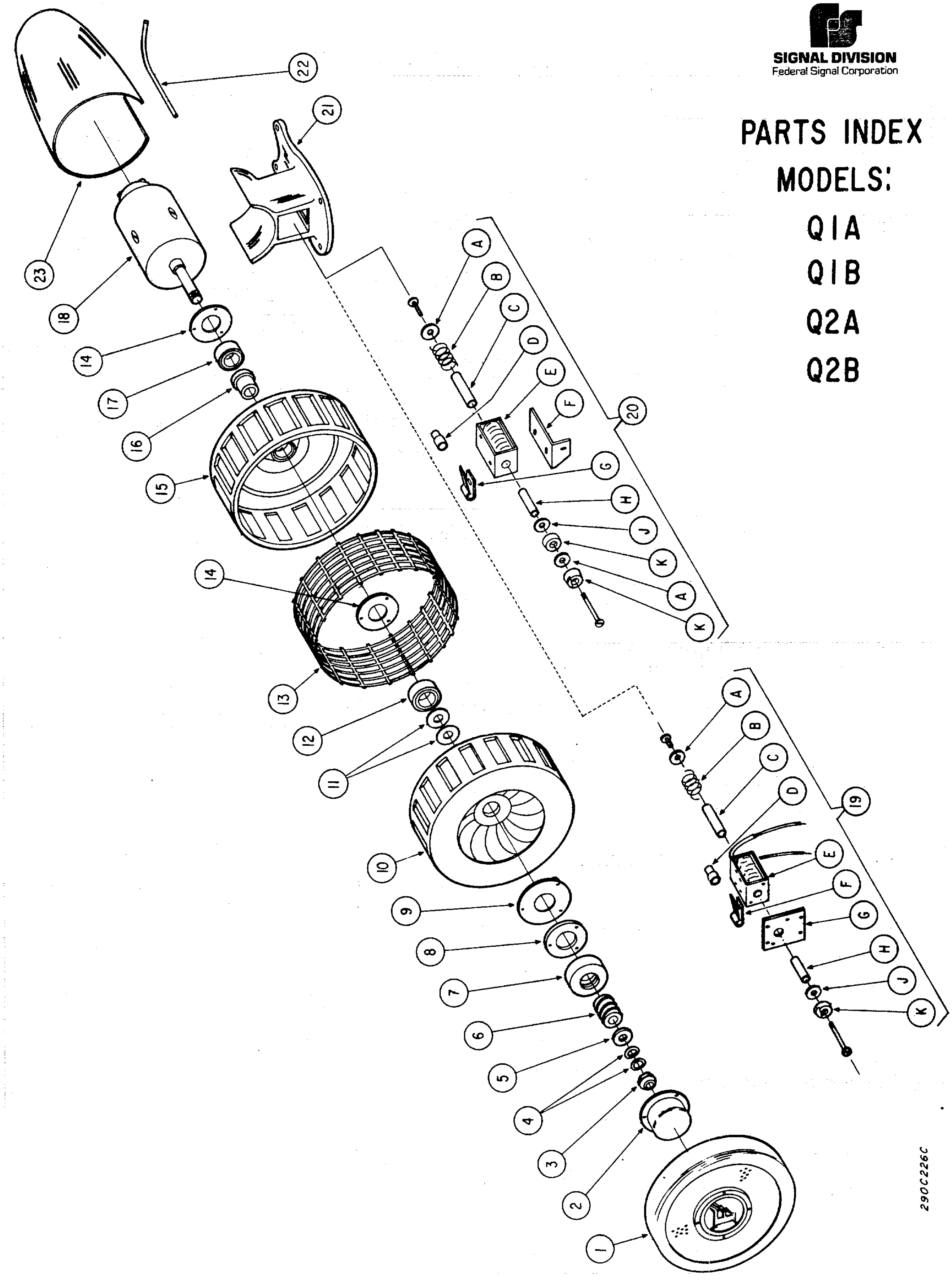
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Federal Signal Corporation

PARTS INDEX

MODELS:

Q1A
Q1B
Q2A
Q2B



PPL 0037
PARTS LIST

Q SIREN
Models : Q1A , Q1B , Q2A , and Q2B

AUGUST 1981

Item No.	Description	Part Number	Q 1A	Q 1B	Q 2A	Q 2B
1	Front Grill Assembly, Gray	8280C002-01G	1	1	0	0
	Front Grill Assembly, Chrome	8280C002-01C	0	0	1	1
2	Cap , Clutch	8427A011	1	1	1	1
3	Nut , Stop	7058A036A	1	1	1	1
4	Washer , Spring	7074A054A	2	2	2	2
5	Washer	7072A140A	1	1	1	1
6	Screw , Clutch	8427A002	1	1	1	1
7	Nut , Clutch	8427A003	1	1	1	1
8	Disc , Clutch	8427A005	1	1	1	1
9	Clutch Cap Mtg. Disc Assembly	8427A016	1	1	1	1
10	Rotor (used with item 19)	8280D020	1	0	1	0
	Rotor (used with item 20)	8280D020-02	0	1	0	1
11	Washer	7072A158A	2	2	2	2
12	Bearing	8126A017	1	1	1	1
13	Guard , Stator , Gray	8280A016-G	1	1	0	0
	Guard , Stator , Chrome	8280A016-C	0	0	1	1
14	Ring , Retainer	8088A001	2	2	2	2
15	Stator (used with item 19)	8280D041	1	0	0	0
	Stator (used with item 20)	8280D041-1G	0	1	0	0
	Stator (used with item 19)	8280D041-0C	0	0	1	0
	Stator (used with item 20)	8280D041-1C	0	0	0	1
16	Bushing , Spacer	8427A004	1	1	1	0
	Bushing	8459A028	0	0	0	1
17	Bearing	8280A008	1	1	1	1
18	Motor , 12Volt	8154D002-01	1	1	1	1
19	Brake Assembly , 12Volt (consists of items 19A thru 19K)	8283A057-01	AR	0	AR	0
19A	Washer , Top Spring	7072A142	1	0	1	0
19B	Spring	8283A165	1	0	1	0
19C	Plunger	8280A033	1	0	1	0
19D	Connector	8283A714	1	0	1	0
19E	Solenoid , 12Volt (G-57077)	8283A043	1	0	1	0
19F	Clamp , Plastic	8240A072	1	0	1	0
19G	Cover , Chrome	8283A115-01	1	0	1	0
19H	Plunger , End	8283A166	1	0	1	0
19J	Washer , Brake Pad	H7149-0A	1	0	1	0
19K	Pad , Brake	H7148-0A	1	0	1	0

Item No.	Description	Part Number	Q 1A	Q 1B	Q 2A	Q 2B
20	Brake Assembly (consists of items 20A thru 20K)	8280B003-02	0	AR	0	AR
20A	Washer , Spring Stop	7072A142	0	2	0	2
20B	Spring , Compression	8280A017	0	1	0	1
20C	Plunger	8280A010	0	1	0	1
20D	Connector	8283A714	0	1	0	1
20E	Solenoid , 12Volt	8280A007-01	0	1	0	1
20F	Bracket , Solenoid	8280A006	0	1	0	1
20G	Clamp , Plastic	8240A072	0	1	0	1
20H	Plunger , End	8280A009	0	1	0	1
20J	Washer , Brake Pad	H7149-0A	0	1	0	1
20K	Pad , Brake	H7148-0A	0	2	0	2
21	Mounting Base , Roof , Gray	8280C027-02G				
	Mounting Base , Roof , Chrome	8280C027-02C				
	Mounting Base , Fender , Gray	8280C028-01G	1AR	1AR	1AR	1AR
	Mounting Base , Fender , Chrome	8280C028-01C				
	Mounting Base , Pedestal , Gray	8280C003-01G				
	Mounting Base , Pedestal , Chrome	8280C003-01C				
22	Gasket	8280A043	0	0	0	1AR
23	Housing	H5205-02	0	0	0	1AR
Not Shown	Switch , Brake	8283A691	1AR	1AR	1AR	1AR
	Switch , Foot	H5027	1AR	1AR	1AR	1AR
	Plate , Under Roof	8080B001	1AR	1AR	1AR	1AR
	Filter	8259A015	1AR	1AR	1AR	1AR
	Strap , Filter	8204A034	1AR	1AR	1AR	1AR
	Brush Set (part of item 18)	8283A685	1AR	1AR	1AR	1AR
	Armature (part of item 18)	8283A665	1AR	1AR	1AR	1AR
	Cover Brake (part of item 20)	8209B009A	0	1AR	0	1AR

DO NOT ORDER PARTS BY ITEM NUMBER
Give model, series, voltage, description, and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

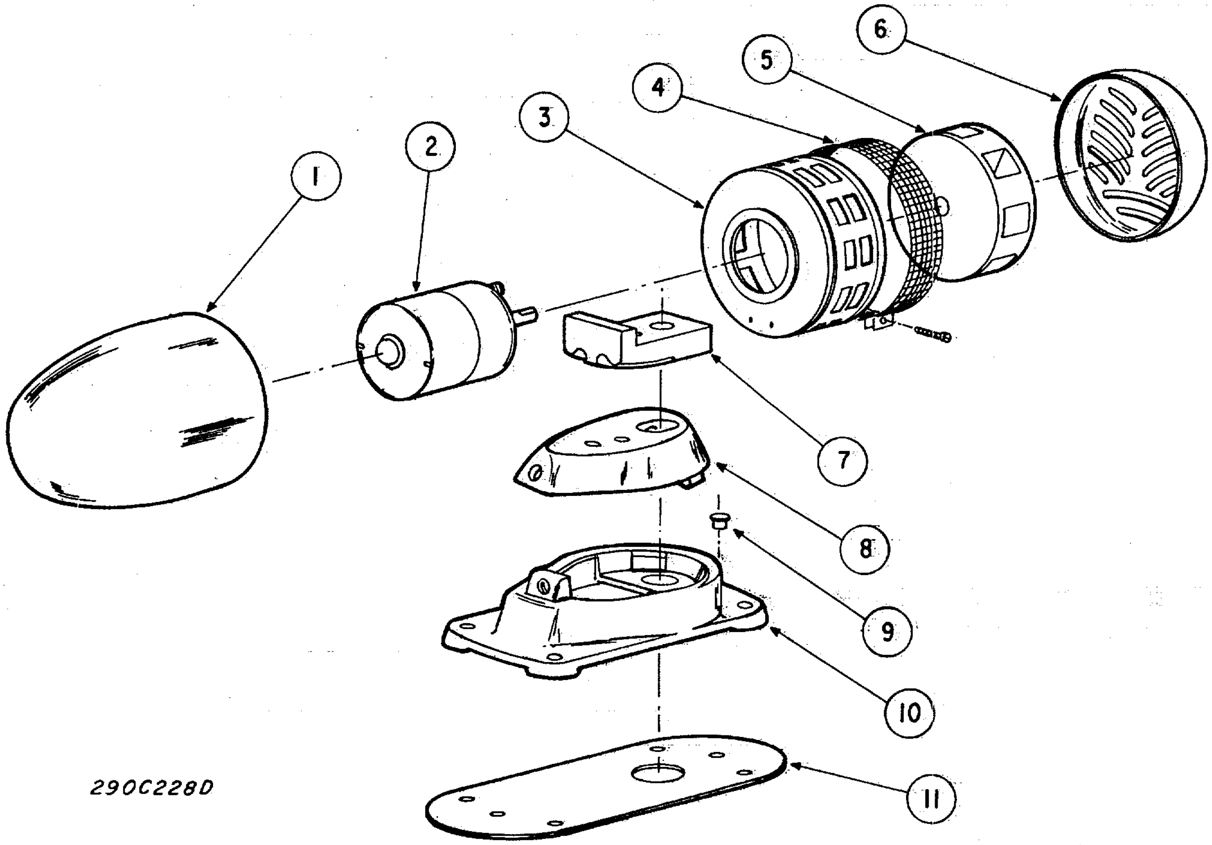
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PARTS INDEX
MODEL WG AND WGH



MODEL WG and WGH SIRENS

PPL 0038

PARTS LIST

AUGUST 1981

Item No.	Description	Part No.	Qty.
1	Housing, Chrome	H7441-OC	1
2	Motor, 12 Volt	8169B010	1 AR
	Motor, 24 Volt	8169B011	
3	Stator, (Model WG)	8170D201-OC	1 AR
	Stator, (Model WGH)	8179C013	
4	Stator Guard	8126A045	1
5	Rotor, (Model WG)	8170B204A	1 AR
	Rotor, (Model WGH)	8170B014	
6	Grille, Chrome	H7086-OC	1
7	Filler Block	H7842	1
8	Adaptor	H7874	1
9	Plug, Hole, Plastic	8470A047	1
10	Base, Universal Roof (4 mtg. holes)	H7844-OE2P	1 AR
	Base, Universal Fender (4 mtg. holes)	H7844-OD	
11	Plate, Under Roof	H5063	1
Not Shown			
	Switch, Foot	H5027	1
	Base, Chrome (2 mtg. holes, replaces item 8 and 9 on some units)	H5052-OA	

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, voltage, description, and part number.

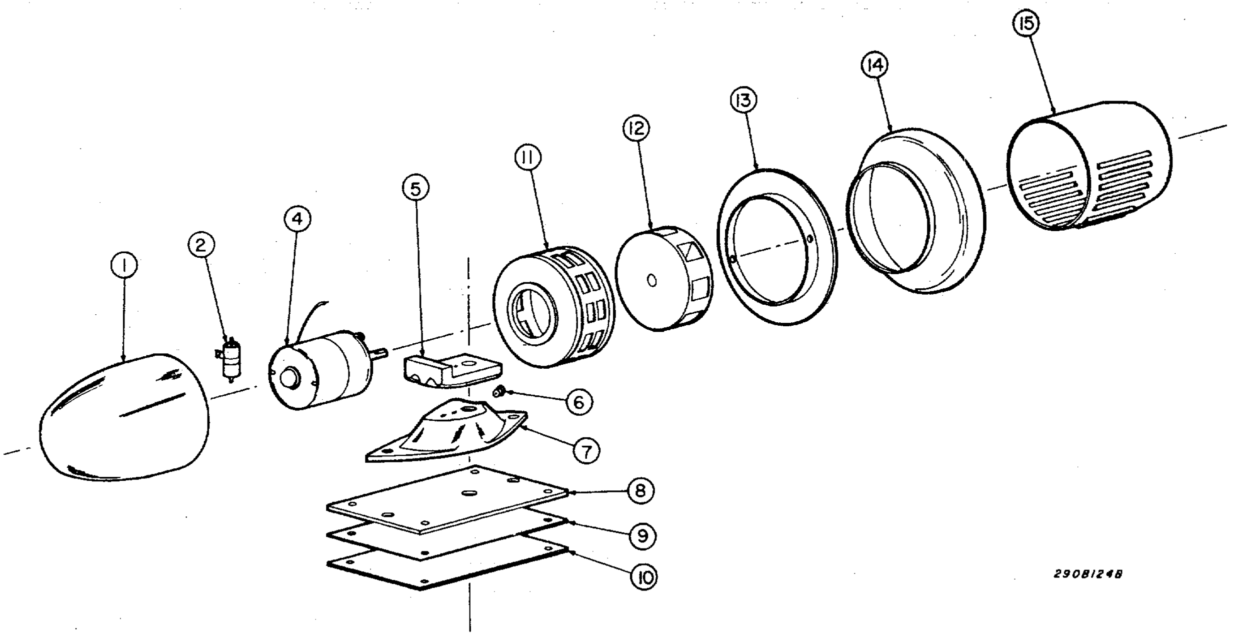
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PARTS INDEX
MODEL WGW



MODEL WGW SIREN

PPL0039
PARTS LIST

AUGUST 1981

Index No.	Description	Part No.	Qty.
1	Housing (Red)	H7441N-OR	1
2	Capacitor, Filter	8170A155	1
4	Motor, 12-volt	8170B187	1AR
	Motor, 24-volt	8170B169	
5	Filler Block	H7842-01	
6	Hole Plug (Base)	8470A047	1
7	Base	H5052-0E	1
8	Base Plate	8170A171	1
9	Gasket	8170A170	1
10	Reinforcing Plate	8170A172	1
11	Stator	H7506-01B	1
12	Rotor Assembly	8170B174	1
13	Baffle Plate	8170C175	1
14	Weather Guard	8170C176	1
15	Front Cover	8170C141-01	1
	NOTE: The following parts are not shown on the drawing and are normally only supplied when specified on order.		
	Connector, 2-Collar Straight	8283A652	
	Switch, Foot	H5027	
	Solenoid, 12-volt	8226A255-01	
	Solenoid, 24-volt	8226A107	

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.

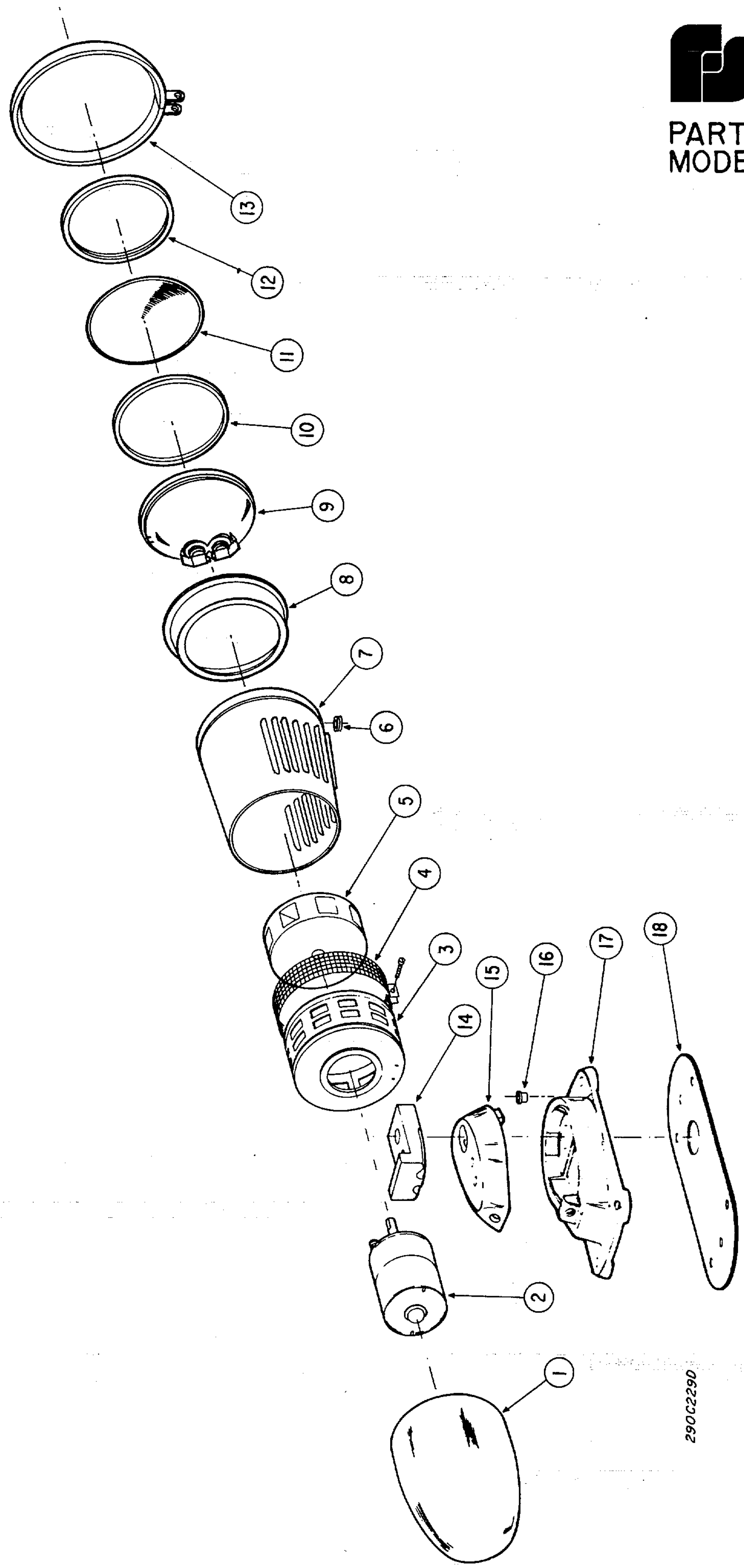
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PARTS INDEX
MODEL WL AND WLH



MODEL WL and WLH SIRENS

PPL 0040 AUGUST 1981

PARTS LIST

Item No.	Description	Part No.	Qty.
1	Housing	H7441-OC	1
2	Motor, 12 Volt	8169B010	1 AR
	Motor, 24 Volt	8169B011	
3	Stator, Model WL	H7506-01	1 AR
	Stator, Model WLH	8179C013	
4	Stator Guard	8126A045	1
5	Rotor, Model WL	8170B046	1 AR
	Rotor, Model WLH	8170B014	
6	Grommet, Rubber	H7204	1
7	Cover, Front	H7578	1
8	Adapter Ring	8170B036	1
9	Lamp, 12 Volt GE 4531	8107A038	1 AR
	Lamp, 24 Volt GE 4880	8285A031	
10	Gasket	8170B037	1
11	Lens, Avia. Red	H7843-01	1 AR
	Lens, Avia. Blue	H7843-02	
	Lens, Avia. White (clear)	H7843-03	
	Lens, Avia. Yellow	H7843-04	
	Lens, Avia. Green	H7843-05	
12	Gasket	8176B002	1
13	Retainer	H7580-OA	1
14	Filler Block	H7842	1
15	Adapter	H7874	1
16	Bushing, Swap	8459A028	1
17	Bracket, Fender	H7844-OE1	1 AR
	Bracket, Roof	H7844-OD	
18	Plate, Under Roof	H5063	1
Not Shown			
	Base	H5052	1 AR
	(replaces items 14 & 15 on some units)		
	Light Accy. with 12 Volt Flasher	8209A024	1 AR
	Light Accy. with 24 Volt Flasher	8209A024-02	
	Terminal Lug	8283A705	3
	Foot Switch	H5027	1
	Front Light Assembly		
	(includes items 6 thru 12 and miscellaneous hardware)		
	Red Lens, 12 Volt	8170C190-11	AR
	Blue Lens, 12 Volt	8170C190-12	
	Green Lens, 12 Volt	8170C190-13	
	Amber Lens, 12 Volt	8170C190-14	
	Clear Lens, 12 Volt	8170C190-15	
	Red Lens, 24 Volt	8170C190-21	
	Blue Lens, 24 Volt	8170C190-22	
	Green Lens, 24 Volt	8170C190-23	
	Amber Lens, 24 Volt	8170C190-24	
	Clear Lens, 24 Volt	8170C190-25	

DO NOT ORDER PARTS BY ITEM NUMBER.
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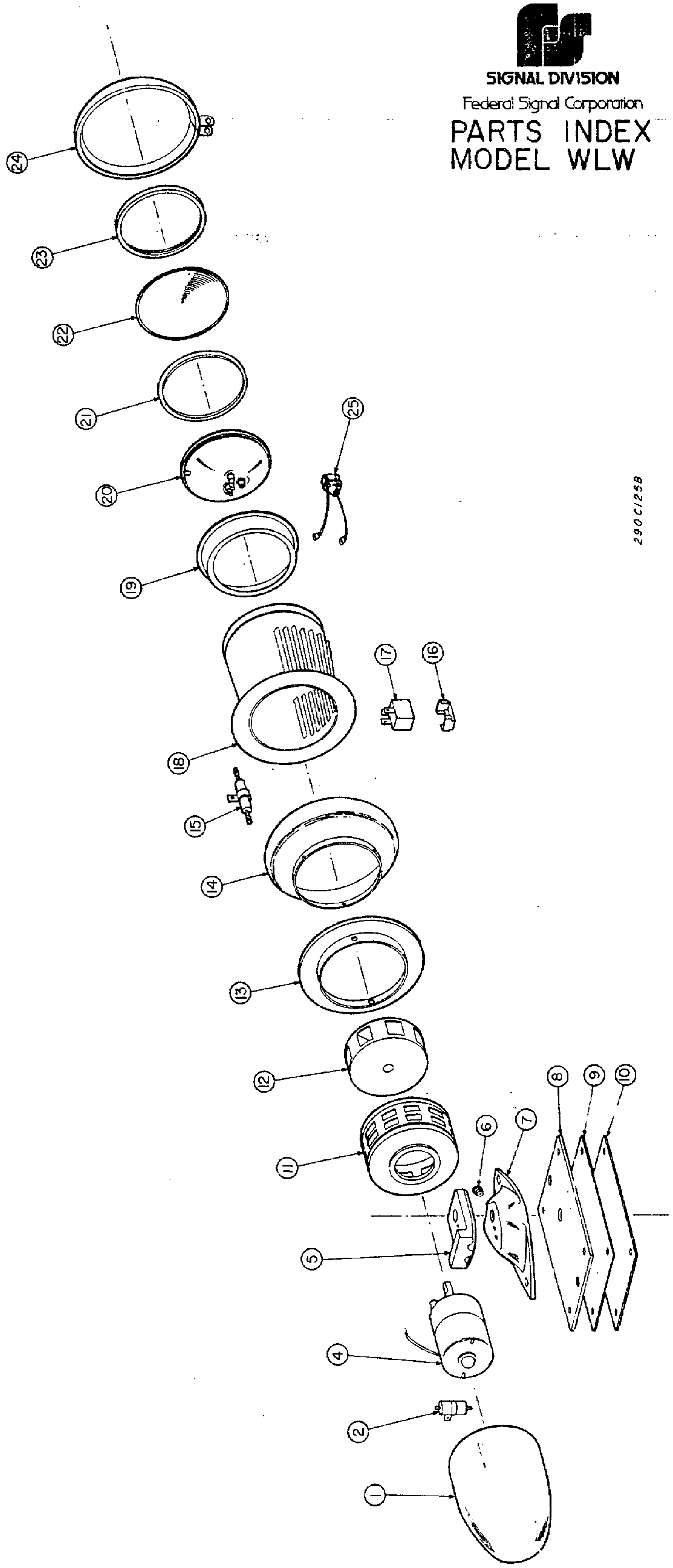
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PARTS INDEX
MODEL WLW



PPL0041

MODEL WLW SIREN

PARTS LIST

AUGUST 1981

Index No.	Description	Part No.	Qty.
1	Housing (Red)	H7441N-OR	1
2	Capacitor, Filter	8170A155	1
4	Motor, 12-volt	8170B187	1AR
	Motor, 24-volt	8170B169	
5	Filler Block	H7842-01	1
6	Grommet	H7204	1
7	Base	H5052-0E	1
8	Base Plate	8170A171	1
9	Gasket	8170A170	1
10	Reinforcing Plate	8170A172	1
11	Stator	H7506-01B	1
12	Rotor Assembly	8170B174	1
13	Baffle Plate	8170C175	1
14	Weather Guard	8170C176	1
15	Capacitor	8170A156	1
16	Flasher Mounting Bracket	8226A367	1
17	Flasher, 12-volt	8226A187-01	1AR
	Flasher, 24-volt	8226A187-02	
18	Front Cover	H7578-02	1
19	Adapter Ring	8170B036	1
20	Lamp, 12-volt GE4480	8285A030	1AR
	Lamp, 24-volt GE4880	8285A031	
21	Gasket	8170B037	1
22	Lens, Red	8170B178	1
23	Gasket	8176B002	1
24	Retainer	H7580-0A-01	1
25	Connector Assembly	8443B026-01	1
	Front Light Assembly, 12 V. (includes items 15 thru 25 and miscellaneous hardware)	8170C167-01-12	
	Front Light Assembly, 24 V. (includes items 15 thru 25 and miscellaneous hardware)	8170C167-01-24	

NOTE: The following parts are not shown on the drawing and are normally only supplied when specified on order.

Description	Part No.
Connector, 2-Collar Straight	8283A652
Switch, Foot	H5027
Switch, Toggle	8226A109
Solenoid, 12-volt	8226A255-01
Solenoid, 24-volt	8226A107

DO NOT ORDER PARTS BY INDEX NUMBER.
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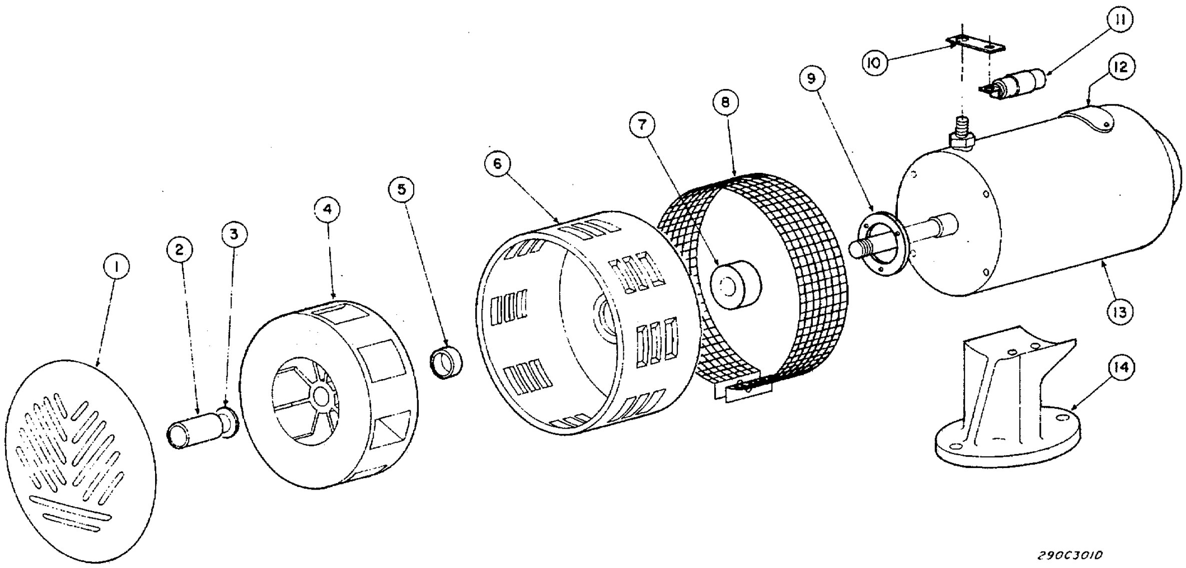
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PARTS INDEX MODEL 28



PPL0020 MODEL 28 SIREN AUGUST 1981
PARTS LIST

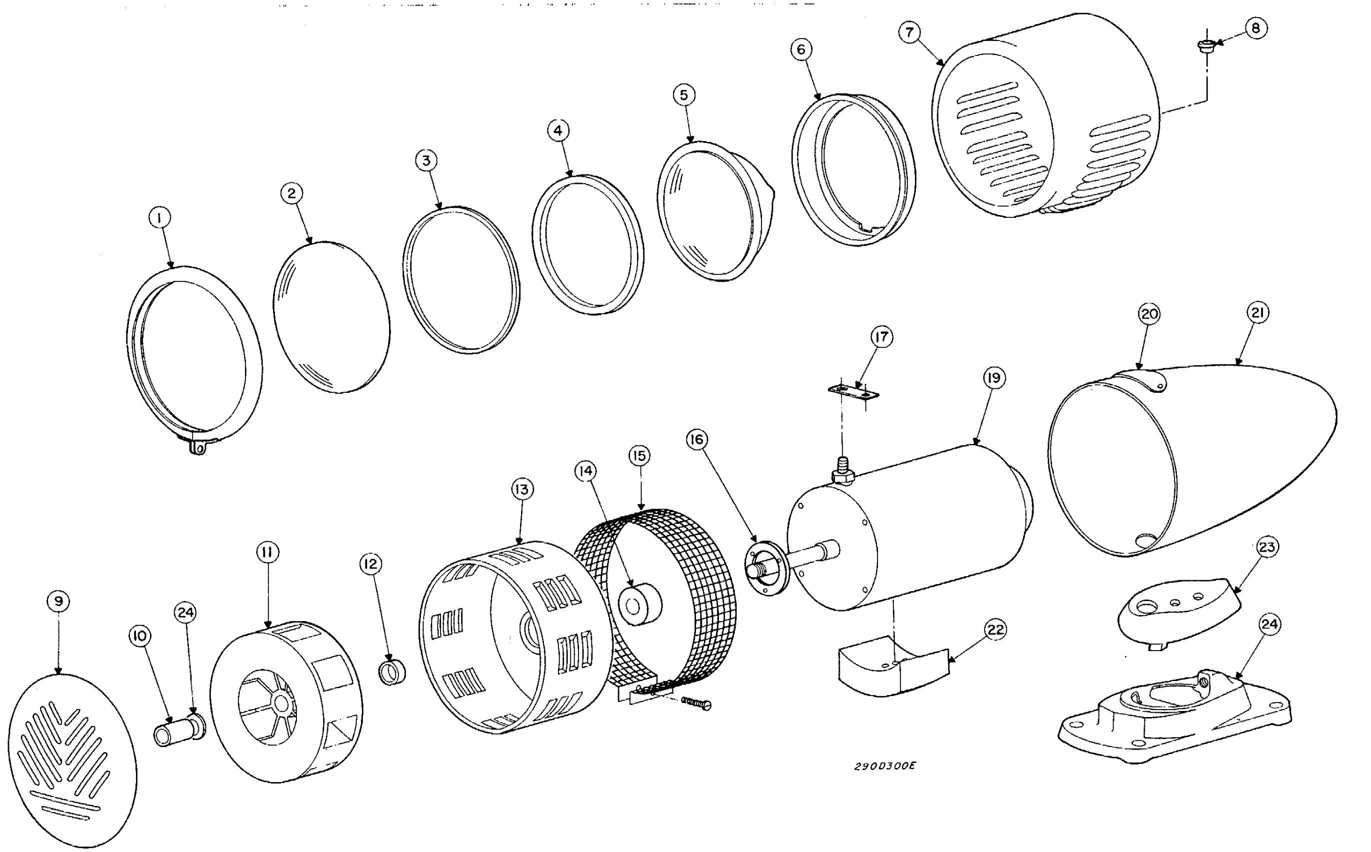
Index No.	Description	Part No.	Qty.
1	Grille	8283B026-01	1
2	Tube, Spacer	H6846-01	1
3	Washer	7072A158	1
4	Rotor	8204B010	1
5	Spacer	8204A013	1
6	Stator	H5202-01	1
7	Bearing	8126A014	1
8	Stator Guard	8126A046	1
9	Ring, Retaining	8088A001	1
10	Strap, Filter	8204A034	1
11	Filter (for filtered units only)	8259A015	1
12	Nameplate	H1324	1
13	Motor, 12 Volt (for unfiltered units)	8154D002-01	1AR
	Motor, 12 Volt (for filtered units)	8154D005-01	
14	Base	8209C010	1
Not Shown			
	Brush set for motor	8283A685	AR
	Switch, Foot	H5027	1
	Grommet	8108A002	1
	Lug, Sherman	506A005	4

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description, and part number.

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PARTS INDEX
MODELS 66L & 66G

MODELS 66L AND 66G SIREN

PPL0021
PARTS LIST

AUGUST 1981

Index No.	Description	Part No.	Qty.
1	Ring, Retaining (66L only)	H7580-0A	1
2	Lens, Red (66L only)	H7843-01	1AR
	Lens, Blue (66L only)	H7843-02	
	Lens, Clear (66L only)	H7843-03	
3	Gasket, Lens (66L only)	8176B002	1
4	Gasket (66L only)	8170B037	1
5	Bulb, 12-volt (66L only) (GE4531)	8107A038	1
6	Adapter (66L only)	8170B036	1
7	Cover, Front (66L only)	H7847	1
8	Grommet (66L only)	H7204	1
9	Grille (66G only)	8283B026	1
10	Spacer, 15/16-inch	H6846-01	1AR
	Spacer, 5/8-inch (high pitch version)	H6846	
11	Rotor	8204B010	1AR
	Rotor (high pitch version)	H5072	
12	Spacer	8204A013	1
13	Stator	H5202-OC	1AR
	Stator (high pitch version)	H7216-0A	
14	Ball Bearing	8126A014	1
15	Stator Guard	8126A046	1
16	Bearing, Retaining Ring	8088A001	1
17	Strap, Filter	8204A034	1AR
19	Motor, 12-volt (for unfiltered siren)	8154D002-01	1
20	Nameplate (66L only)	H1335	1AR
	Nameplate (66G only)	H1335-02	
21	Housing	H5205-01	1
22	Block, Filler	8126B016	1
23	Adapter	H7873-01	1AR
24	Bracket, Universal	H7844-0E2P	1AR
25	Washer	7072A158	1
Not Shown	Plate, Reinforcing	8080B001	
	Light Accessory with 12-volt flasher	8209A024	
	Switch, Foot	H5027	
	Connector	8283A712	
	Brush set for item 19	8283A685	

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.

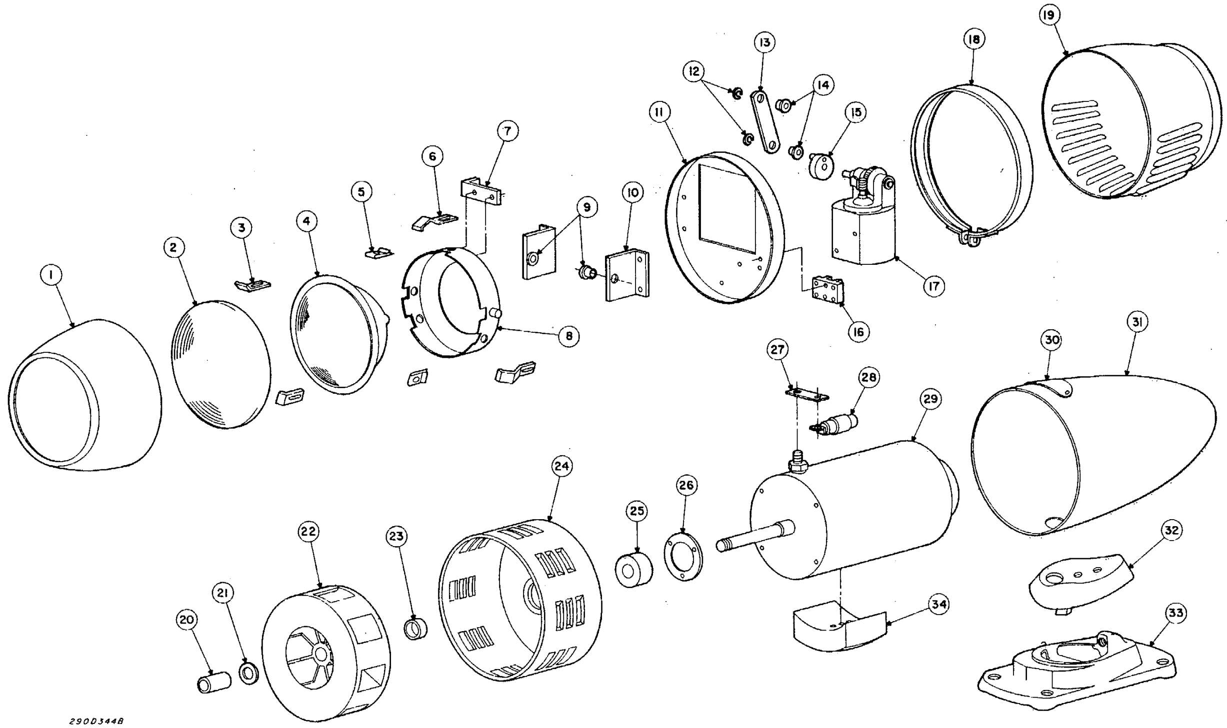
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PARTS INDEX
MODEL 67



MODEL 67 SIREN

Index No.	Description	Part No.	Qty.
1	Cover, Front	H7613	1
2	Lens, Red	H7843-01	1AR
	Lens, Blue	H7843-02	
	Lens, Clear	H7843-03	
3	Clip, Lens	8253A104	3
4	Lamp, 12-volt	8107A026	1
5	Speed Nut	8240A054	3
6	Clamp, Lamp	8240A016	3
7	Lamp Link Bracket Assy.	8253A114	1
8	Lamp Holder Assy.	8253A112	1
9	Bearing	8253A115	2
10	Lamp Hinge Plate	8253A107	1
11	Plate, Base	8253B101	1
12	Ring, Retaining	8253A118	2
13	Link	8253A111	1
14	Bearing	8253A116	2
15	Cam Assy.	8253A113	1
16	Block, Terminal	8253A119	1
17	Motor, 12-volt	8253B117	1
18	Retaining Rim Assy.	H7616-0A	1
19	Ring, Adapter	H7777	1
20	Spacer, 15/16-inch	H6846-01	1AR
	Spacer, 5/8-inch (Hi pitch units)	H6846	
21	Washer	7072A158	1
22	Rotor	8204B010	1AR
	Rotor (Hi pitch units)	H5072	
23	Spacer	8204A013	1
24	Stator	H5202	1AR
	Stator (Hi pitch units)	H7216-0A	
25	Bearing, Ball	8126A014	1
26	Retaining Ring, Bearing	8088A001	1
27	Strap, Filter	8204A034	1AR
28	Filter	8259A015	1AR
29	Motor, 12-volt	8154D002-01	1AR
	Motor, 12-volt (for filtered units)	8154C005-01	
30	Nameplate	H1335-02	1
31	Housing	H5205-01	1
32	Adapter	H7873-01	1AR
33	Bracket, Universal	H7844-0E	1AR
34	Block, Filler	8126B016	1AR
Not Shown	Base	H5200	
	Bracket, Roof	H7844-0D	
	Plate, Reinforcing	8080B001	
	Light Accessory with 12-volt Flasher	8209A024	
	Switch, Foot	H5027	
	Connector	8283A712	
	Brush set for item 29	8283A685	

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.

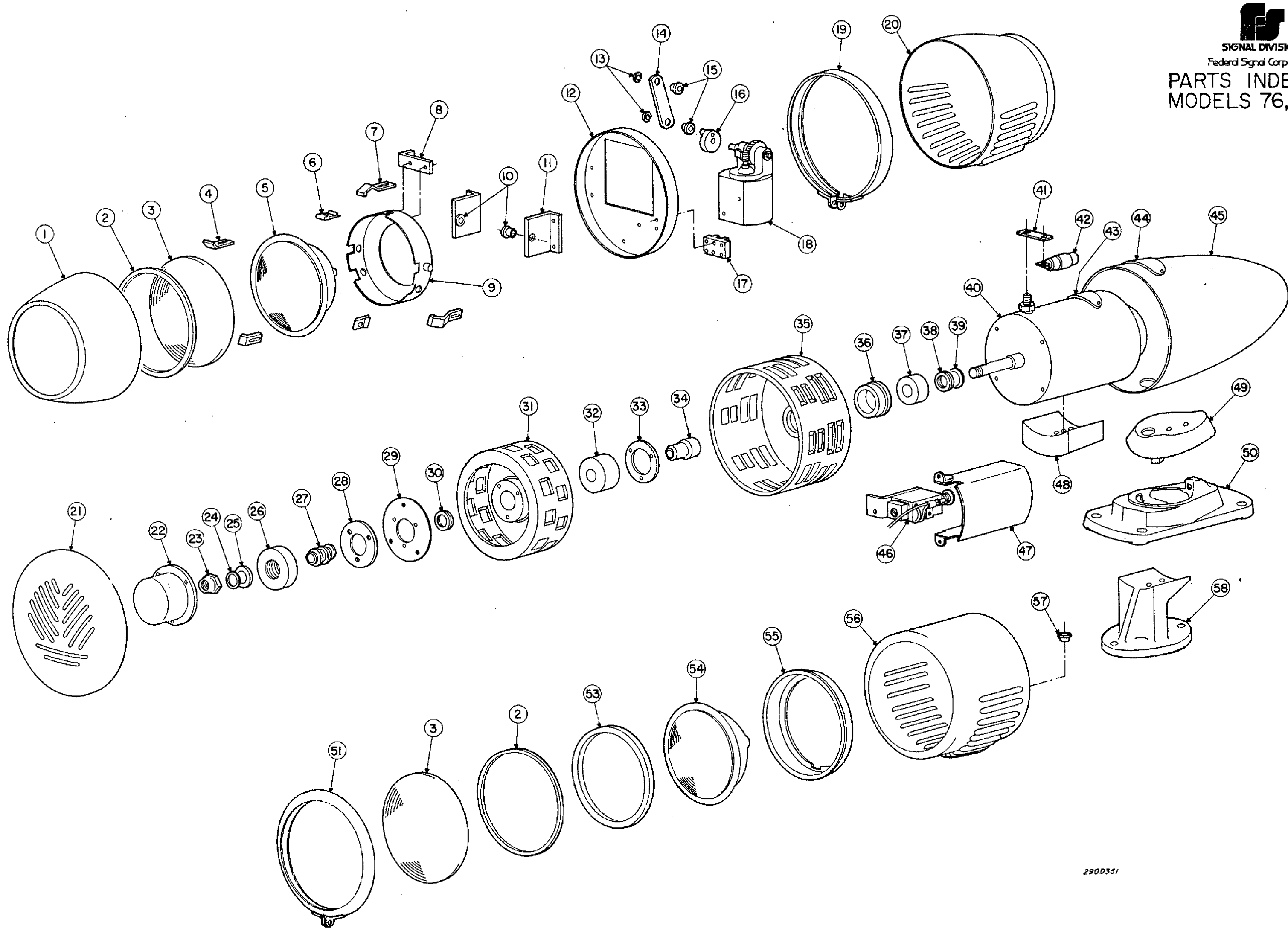
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PARTS INDEX
MODELS 76, 77, 78



Index No.	Description	Part No.	Qty.
1	Cover, Front	H7613	1
2	Gasket	8176B002	1
3	Lens, Red	H7843-01	1AR
	Lens, Blue	H7843-02	
	Lens, Clear	H7843-03	
	Lens, Amber	H7843-04	
4	Clip	8253A104	3
5	Bulb, 12-volt	8107A026	1
6	Speed Nut	8240A054	3
7	Clamp, Lamp	8240A016	3
8	Lamp Link Bracket Assy.	8253A114	1
9	Lamp Holder Assy.	8253A112	1
10	Bearing	8253A115	2
11	Plate, Hinge	8253A107	2
12	Plate, Base	8253B101	1
13	Ring, Retaining	8253A118	2
14	Link	8253A111	1
15	Bearing	8253A116	2
16	Cam Assy.	8253A113	1
17	Terminal Block	8253A119	1
18	Motor, 12-volt	8253B117	1
19	Rim, Retaining	H7616-0A	1
20	Ring, Adapter	H7777	1
21	Grille, Front (Chrome)	8283B026-OC	1AR
	Grille, Front (Painted)	8283B026-01G	
22	Cap, Clutch	8427A011	1
23	Stop Nut	7058A036	1
24	Lockwasher, Spring	7074A054	2
25	Washer	7072A140	1
26	Nut, Clutch	8427A003	1
27	Screw, Clutch	8427A002	1
28	Disc, Clutch	8427A005	1
29	Clutch Cap Mounting Disc Assy.	8427A016	1
30	Washer	7072A158	2
31	Rotor	H5187	1
32	Bearing	8126A017	1
33	Ring, Retaining	8088A001	1
34	Bushing, Spacer	8427A014	1
35	Stator (Chrome)	H5186-OC	1AR
	Stator (Painted)	H5186-OG	

Index No.	Description	Part No.	Qty.
36	Bushing, Bearing	8283A168	1
37	Bearing	8126A014	1
38	Spacer	7072A152	2
39	Spacer	7072A150	1
40	Motor, 12-volt (for unfiltered siren)	8154D002-01	1AR
	Motor, 12-volt (for filtered siren)	8154C005-01	
41	Strap, Filter (for filtered siren)	8204A034	1AR
42	Filter (for filtered siren)	8259A015	1AR
43	Nameplate	H1324	1
44	Nameplate	H1335	1
45	Housing, Chrome	H5205-01	1
46	Brake Assy., 12-volt	8280B003-01	1AR
47	Cover, Brake	8209B009	1AR
48	Block, Filler	8126B016	1
49	Adapter (Model 77 and 78)	H7873-01	1AR
50	Base, Fender	H7844-OE	1
51	Ring, Retainer	H7580-OA	1
52	Lens, Red	H7843-01	1AR
	Lens, Blue	H7843-02	
	Lens, Clear	H7843-03	
	Lens, Amber	H7843-04	
	Lens, Green	H7843-05	
53	Gasket	8170B037	1
54	Bulb, 12-volt	8107A038	1
55	Adapter	8170B036	1
56	Cover, Front	H7847	1
57	Grommet	H7204	1
58	Base (Model 76 only)	8209C010	1AR
	NOTES: 1. Items 1 and 3-20 used on Model 78 only. 2. Items 51-57 used on Model 77 only.		
Not Shown	Brush set for item 40	8283A685	
	Switch, Foot	H5027	
	Rear Light Assy., 12-volt	8283B480-12	AR
	Light Assy. with 12-volt Flasher	8209A024	AR
	Under Roof Plate (Models 77 and 78)	8080B01	1

DO NOT ORDER PARTS BY INDEX NUMBER. Give model, voltage, description and part number.

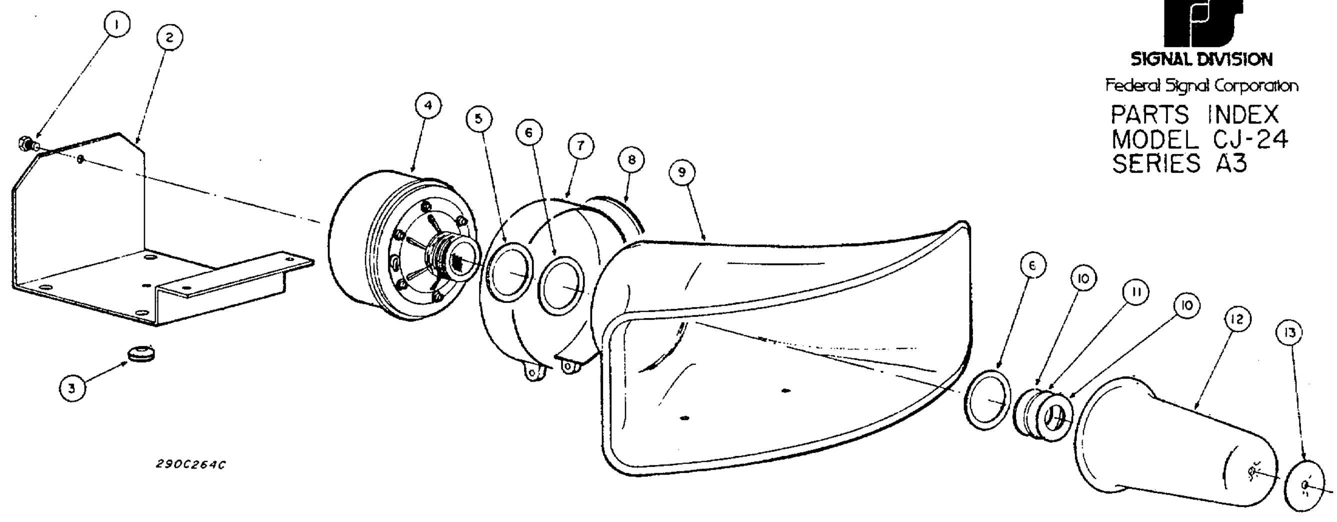
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SPEAKERS

SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX
MODEL CJ-24
SERIES A3



Model CJ24 SPEAKER ASSEMBLY

PPL 0043 — AUGUST 1981

PARTS LIST

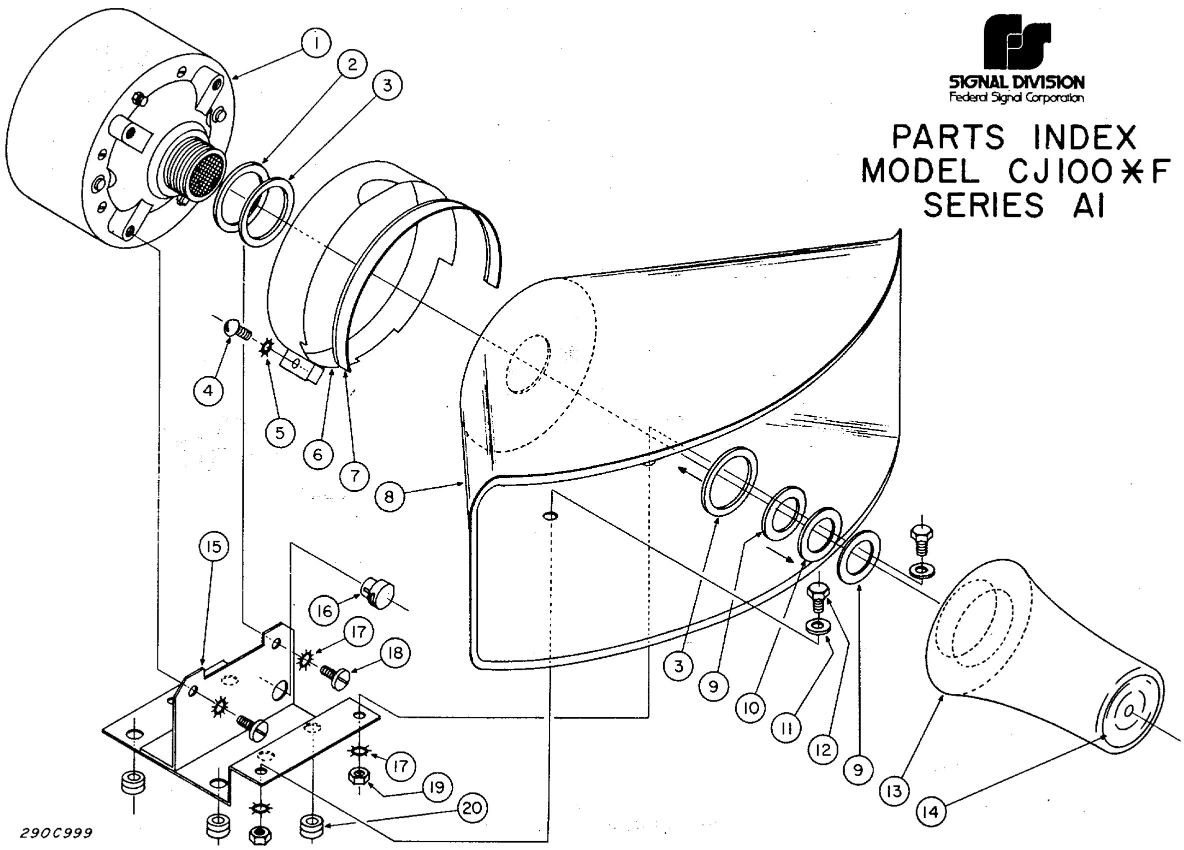
Item No.	Description	Part No.	Qty.
1	1/4-28 x 1/2 Screw, Hex Hd.	7000A316-08	1
2	Bracket	8283C292	1
3	Grommet	8108A014	6
4	Driver	8283B433	1
5	Washer, Steel	7072A137	1
6	Washer, Vellutex	8283A451	2
7	Band, Cover, Painted	8283A448	1
8	Gasket	8283A449	1
9	Projector	8283C432	1
10	Washer, Vellutex	8283A453	2
11	Washer, Rubber	8283A452	1
12	Cone	8283B430-01	1
13	Nameplate	8146A507-03	1
Not Shown			
	Coil and Diaphram Assy. (part of item 4)	8287A164	1
	Visibar Conversion Kit	8422A152	1 AR

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, voltage, description, and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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PARTS INDEX
MODEL CJ100*F
SERIES A1

PPL 0124 Model CJ100*F 100 Watt SPEAKER AUGUST 1981
PARTS LIST

Item No.	Description	Part No.	Qty.
1	Driver, 100 Watt (gray)	8287B321A	1
2	Washer, Steel 1-7/8 X 1-3/8	7072A137A	1
3	Washer, Vellutex 1-7/8 X 1-3/8	8283A451	2
4	8-32 X 1/2 Truss Hd. S.S. Scr.	7000A452-08	1
5	Lockwasher, S.S. Ext. Tooth	7075A064	1
6	Weather Guard Assembly	8470A218-01	1
7	Gasket, Weather Guard	8470A219A	1
8	Projector (gray)	8283C432	1
9	Washer, Vellutex 1-5/16 X 3/4	8283A453	2
10	Washer, Rubber 1-5/16 X 3/4	8283A452	1
11	Washer, Flat 3/4 X 1/4	7072A025	2
12	1/4-20 X 5/8 Hex. Hd. Bolt	7000A307-10	2
13	Cone, Short (black)	8283B430-01	1
14	Nameplate	8146A507-13	1
15	Bracket, Speaker Assembly	8287B289	1
16	Strain Relief, Right Angle	8444A023	1
17	Lockwasher, Ext. Tooth	7075A007	4
18	1/4-20 X 1/2 Pan Hd. Scr.	7000A412-08	2
19	1/4-20 Hex. Nut	7059A018	2
20	Grommet	8108A014	5
Not Shown	Terminals, Ark-les #3000H9A	8283A956	2
	Accessory Kit	8283A570	1AR

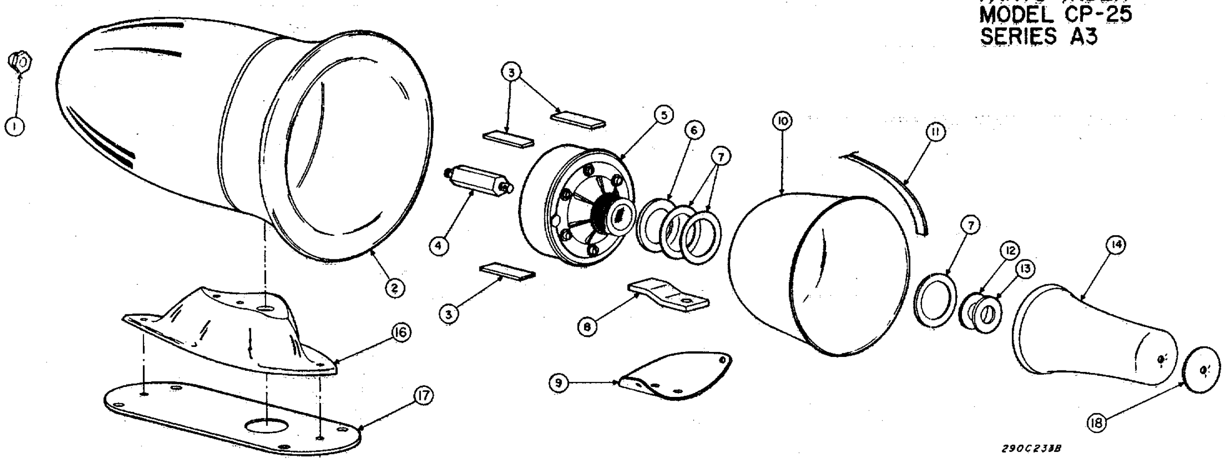
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Give model, voltage, description and part number.

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Federal Signal Corporation
PARTS INDEX
MODEL CP-25
SERIES A3



PPL0042
PARTS LIST

MODEL CP25 SPEAKER ASSEMBLY

AUGUST 1981

Index No.	Description	Part No.	Qty.
1	1/4-20 Acorn Nut (Chrome Plated)	7054A002	1
2	Speaker Housing, Chrome	8283C526	1
3	Driver Support Pad	8283A530	3
4	Driver Spacer	8283A524	1
5	Driver, SA-70	8283B433	1
6	Washer	7072A137	1
7	Vellutex Washer	8283A451	3
8	Driver Support	8287A126	1
9	Housing Support	8283A525	1
10	Speaker Projector	8283B527	1
11	Gasket	8283A531	1
12	Vellutex Washer	8283A453	1
13	Rubber Washer	8283A452	1
14	Cone	8283B430-01	1
16	Base, Chrome	H5052-OA	1
17	Plate, Under Roof	H5063	1
18	Nameplate	8146A507-05	1
Not	Visibar Conversion Kit	8422A162	1
Shown	Coil and Diaphragm Assy. (part of item 5)	8287A164	1

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.

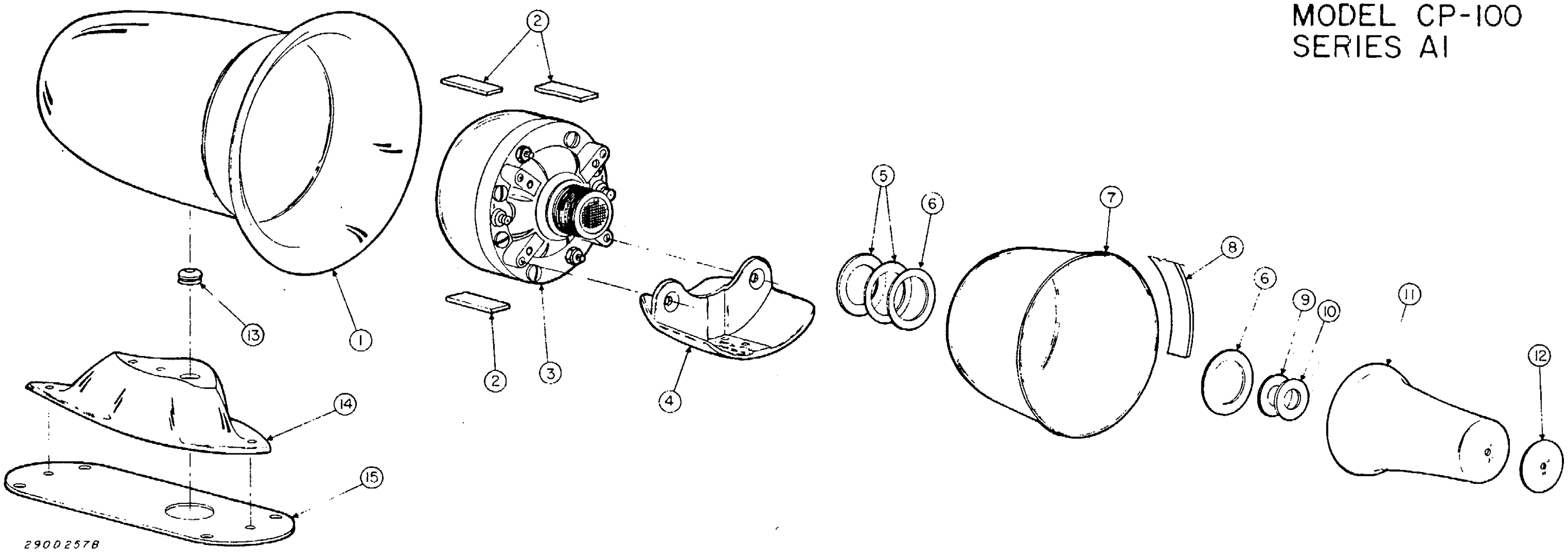
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PARTS INDEX
MODEL CP-100
SERIES A1



PARTS LIST

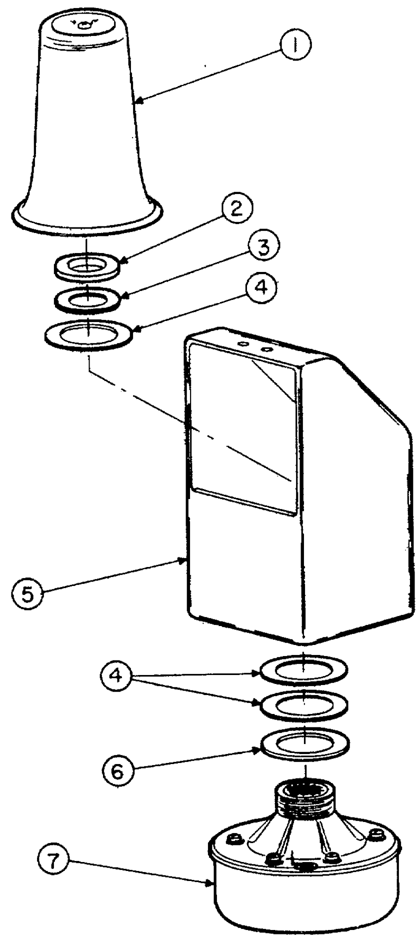
Item No.	Description	Part No.	Qty.
1	Housing, Speaker	8283C526	1
2	Support Pad, Driver	8283A530	3
3	Driver, 100 Watt	8287B321	1
4	Bracket, Driver	8287D137	1
5	Washer, Steel	7072A137	2
6	Washer, Vellutex	8283A451	2
7	Projector, Speaker	8283B527	1
8	Tape, Gasket	8283A513	1
9	Washer, Rubber	8283A452	1
10	Washer, Vellutex	8283A453	1
11	Cone	8283B430-01	1
12	Nameplate	8146A507-09	1
14	Base, Chrome	H5052-OA	1
15	Plate, Under Roof	H5063	1
Not Shown			
	Spacer, Driver	8287A320	1 AR
	Block Spacer (Visibar Mount)	8422B062	1 AR
	Bracket, Clamp (Visibar Mount)	8422A055	1 AR
	Visibar Conversion Kit	8422A162	1 AR

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, voltage, description, and part number.

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SIGNAL DIVISION

Federal Signal Corporation

PARTS INDEX
MODEL GR-24
SERIES A3

MODEL GR-24 SPEAKER

PPL0045
PARTS LIST

AUGUST 1981

Index No.	Description	Part No.	Qty.
1	Cone	8283B430-01	1
2	Rubber Washer	8283A452	1
3	Vellutex Washer	8283A453	1
4	Vellutex Washer	8283A451	3
5	Speaker Horn	8283C639-01	1
6	Steel Washer	7072A137	2
7	Driver	8283B433	1
Not Shown	Speaker Bracket	8283A771	1
	Speaker Bracket	8283A772	1
	Coil & Diaphram Assy. (part of item 7)	8287A164	1
	Mounting Kit	8287A020	1AR

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

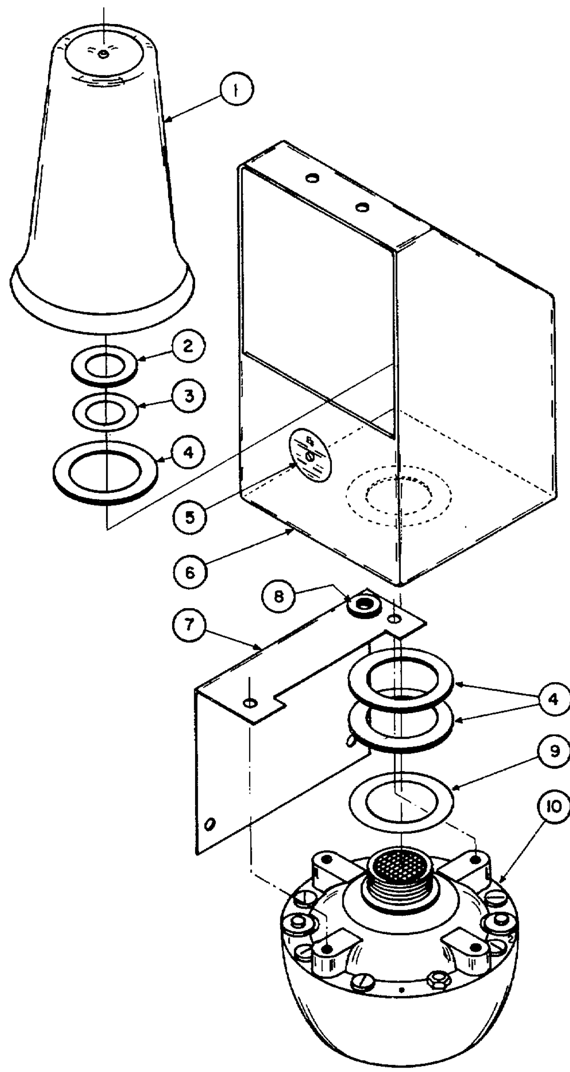
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Federal Signal Corporation

PARTS INDEX
MODEL GR-100
SERIES A1



290B796

PPL0114
PARTS LIST — MODEL GR100 SPEAKER — AUGUST 1981

Index No.	Description	Part No.	Qty.
1	Short Cone	8283B430	1
2	Rubber Washer	8283A452	1
3	Vellutex Washer	8283A453	1
4	Vellutex Washer	8283A451	3
5	GR100 Nameplate	8146A507-12	1
6	Speaker Horn	8283C639-01	1
7	Mounting Bracket	8470B223	1
8	Rubber Grommet	8108A014	1
9	Steel Washer	7072A137	1
10	100 Watt Driver	8287B321	1
Not Shown	Speaker Bracket	8283A771	1
	Speaker Bracket	8283A772	1
	Replacement Head Kit (including coil and diaphragm for item 10)	8287A162	1

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.

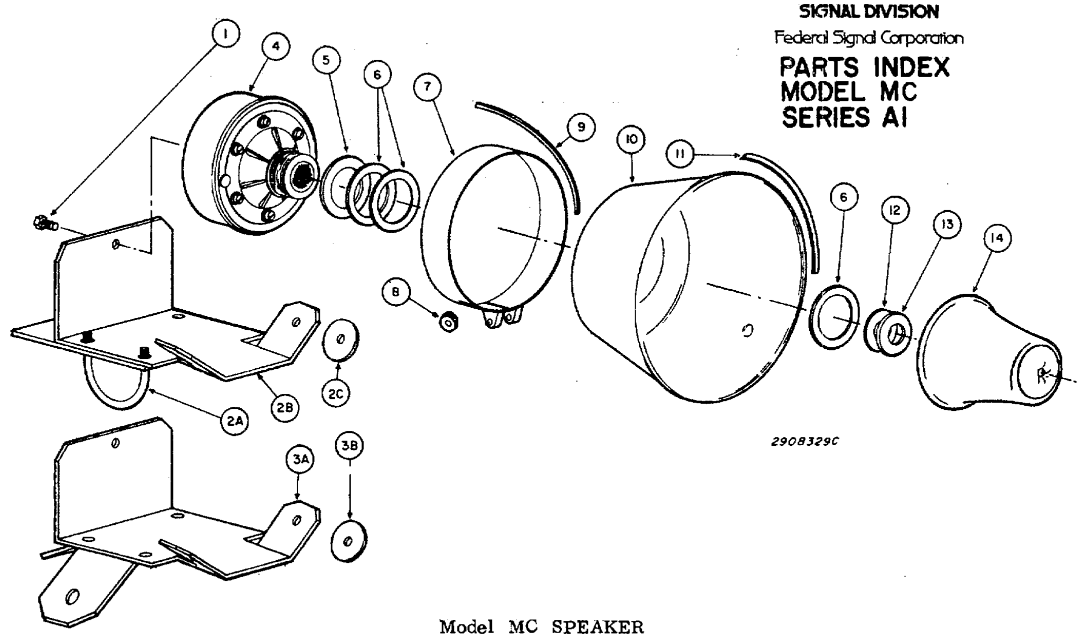
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Federal Signal Corporation

PARTS INDEX MODEL MC SERIES A1



Model MC SPEAKER

PPL 0046
PARTS LIST

AUGUST 1981

Item No.	Description	Part No.	Qty.
1	1/4-28 x 1/2 Screw, Hex Hd.	7000A316-08	1
2	Rollbar Mounting Kit (consists of items 2A, 2B, and 2C and misc. hardware)	8475A026	AR
2A	" U " Bolt	7003A006	2
2B	Bracket, Speaker	8475C012	1
2C	Washer, Rubber	7072A168	4
3	Headlight Mounting Kit (consists of items 3A, 3B, and misc. hardware)	8475A025	AR
3A	Bracket, Speaker	8475C013	1
3B	Washer, Rubber	7072A168	8
4	Driver, SA-70	8283B433-01	1
5	Washer, Steel	7072A137	1
6	Washer, Vellutex	8383A451	3
7	Band, Cover	8283A448-01	1
8	Grommet	8108A014	1
9	Gasket	8283A449	1
10	Projector, Speaker	8283B527-01	1
11	Gasket, Grille	8475A020	1
12	Washer, Vellutex	8283A453	1
13	Washer, Rubber	8283A452	1
14	Cone	8283B500-01	1
Not Shown			
	Coil and Diaphragm Assembly (part of item 4)	8287A164	1

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, voltage, description, and part number.

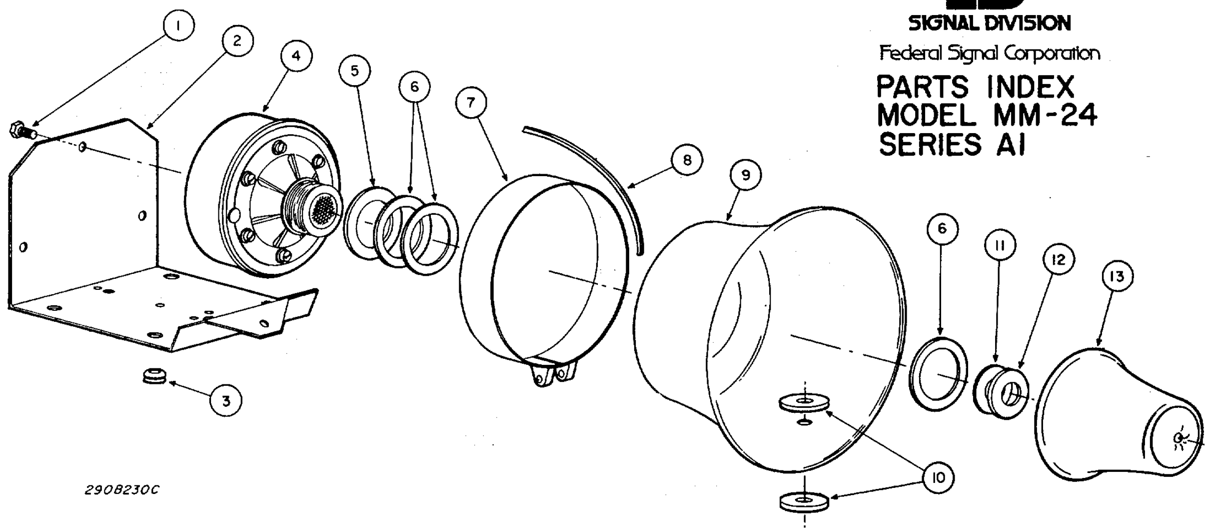
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PARTS INDEX MODEL MM-24 SERIES A1



* Model MM24 SPEAKER ASSEMBLY
(no longer manufactured)

PPL 0047 AUGUST 1981
PARTS LIST

Item No.	Description	Part No.	Qty.
1	1/4-28 x 1/2 Screw, Hex Hd.	7000A316-08	1
2	Bracket	8283C496	1
3	Grommet	8108A014	6
4	Driver	8287B138-01	1
5	Washer	7072A137	1
6	Vellutex Washer	8283A451	3
7	Band, Cover	8283A448	1
8	Gasket	8283A449	1
9	Projector	8283B527-03	1
10	Rubber Washer	7072A168	2
11	Vellutex Washer	8283A453	1
12	Rubber Washer	8283A452	1
13	Cone	8283B005-02	1
Not Shown			
	Clamp Bracket	8422A127	1 AR
	(for Visibar mount, part of conversion kit)		
	Visibar Conversion Kit	8422A152	AR
	Coil and Diaphragm Assy. (part of item 4)	8287A164	1

* Since this unit is no longer manufactured, some parts may not be available. When parts are not available, a TS24 Conversion Kit should be purchased (see price list D-3).

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, voltage, description and part number.

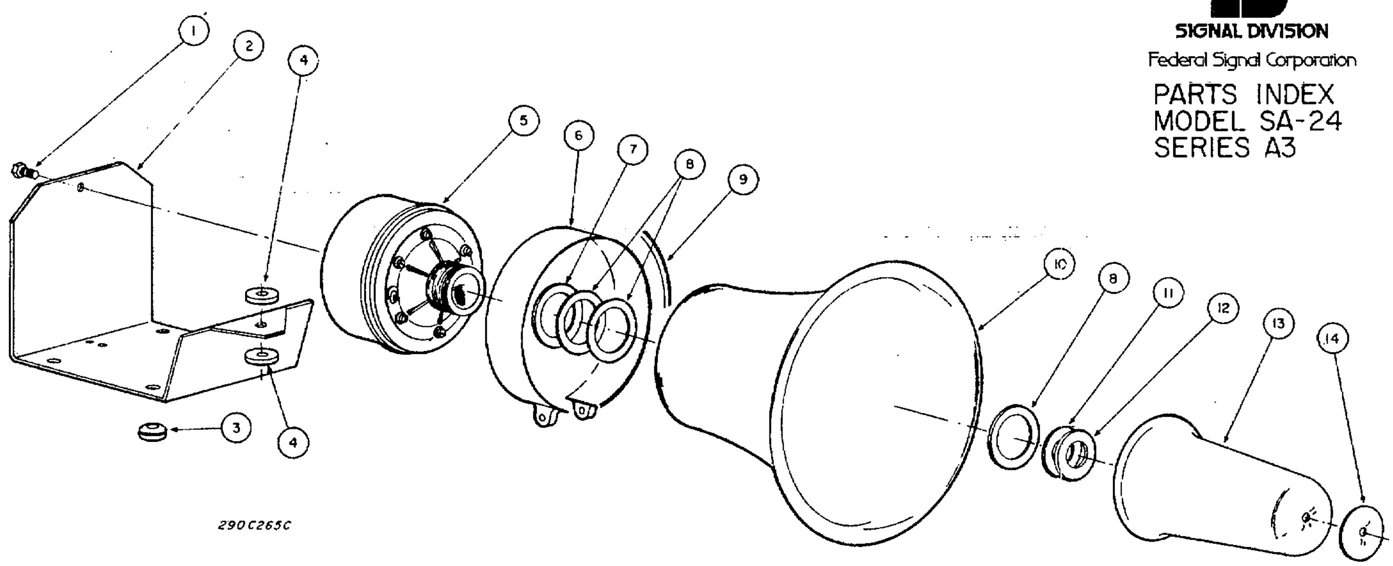
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PARTS INDEX
MODEL SA-24
SERIES A3



Model SA-24 SPEAKER ASSEMBLY

PPL 9048
PARTS LIST

AUGUST 1981

Item No.	Description	Part No.	Qty.
1	1/4-28 x 1/2 Screw, Hex Hd.	7000A316-08	1
2	Bracket	8283C409	1
3	Grommet	8108A014	6
4	Washer, Rubber	7072A168	2
5	Driver	8283B433	1
6	Band, Cover - Painted	8283A448	1
7	Washer, Steel	7072A137	1
8	Washer, Vellutex	8283A451	3
9	Gasket	8283A449	1
10	Projector	8283C431	1
11	Washer, Vellutex	8283A453	1
12	Washer, Rubber	8283A452	1
13	Cone	8283B430-01	1
14	Nameplate	8146A507-02	1
Not Shown			
	Coil and Diaphragm Assy. (part of item 5)	8287A164	1
	Visibar Conversion Kit	8422A152	1 AR

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description, and part number.

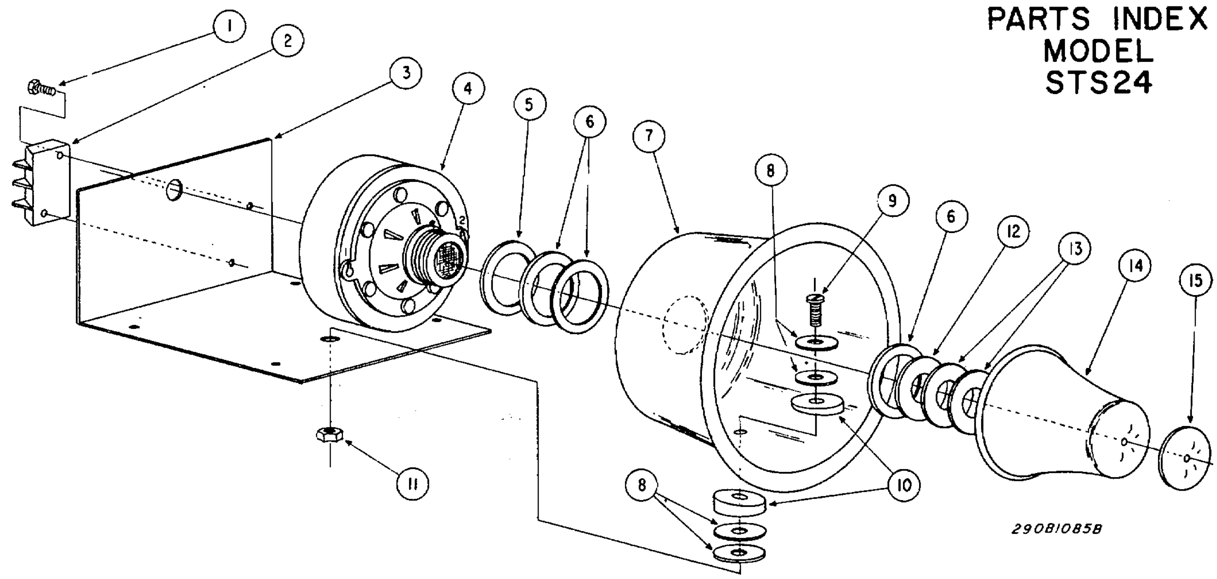
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PARTS INDEX MODEL STS24



PPL 0131 PARTS LIST — Model STS24 SPEAKER — AUGUST 1981

Item No.	Description	Part No.	Qty.
1	8-32 x 5/8 Screw, Hex Hd., Thd. Frm.	7011A027-10	2
2	Terminal Block	8442A032	1
3	Bracket, Speaker Mounting	8470C161	1
4	Driver, (Gray)	8283B433	1
5	Washer, Steel	7072A137	1
6	Washer, Vellutex	8283A451	3
7	Projector, (Black)	8283B527-03	1
8	Washer, Flat	7072A025	4
9	1/4-20 Screw, Flt. Hd. Slt.	7000A233-14	1
10	Washer, Taper Rubber	8240A022	2
11	1/4-20 Nut, Hex, ESNA	7058A009	1
12	Washer, Rubber	8283A452	1
13	Washer, Vellutex	8283A453	2
14	Cone, (Black)	8283B500-01	1
15	Nameplate	8146A507-10	1
Not Shown			
	Accessory Kit, For Under-Hood Mounting	8470A128	1 AR
	Replacement Head Kit (includes coil and diaphram)	8287A162	1 AR

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, voltage, description, and part number.

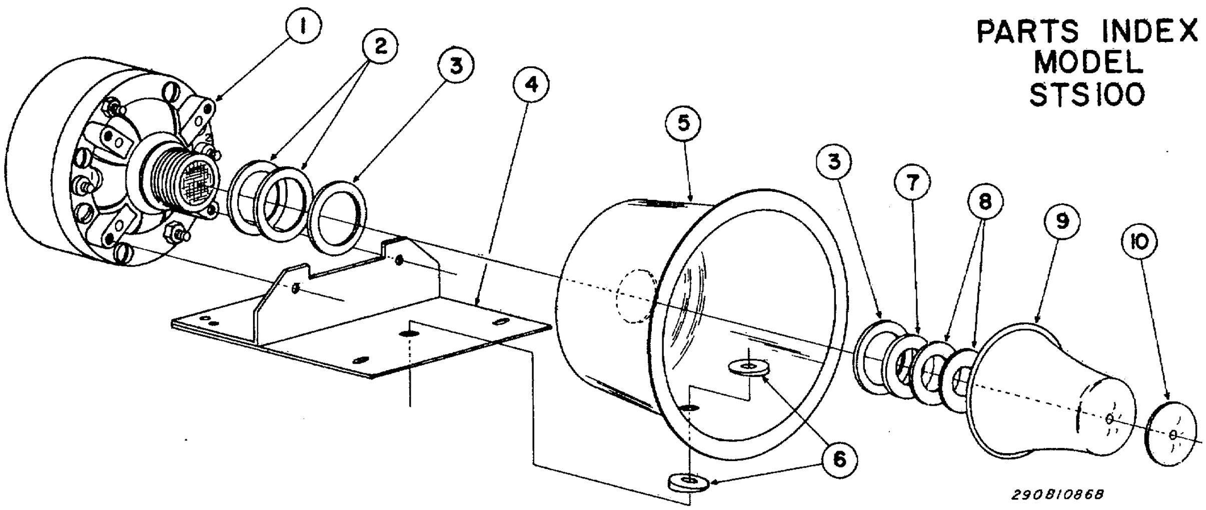
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PARTS INDEX MODEL STS100



Model STS100 SPEAKER

PPL0132
PARTS LIST

AUGUST 1981

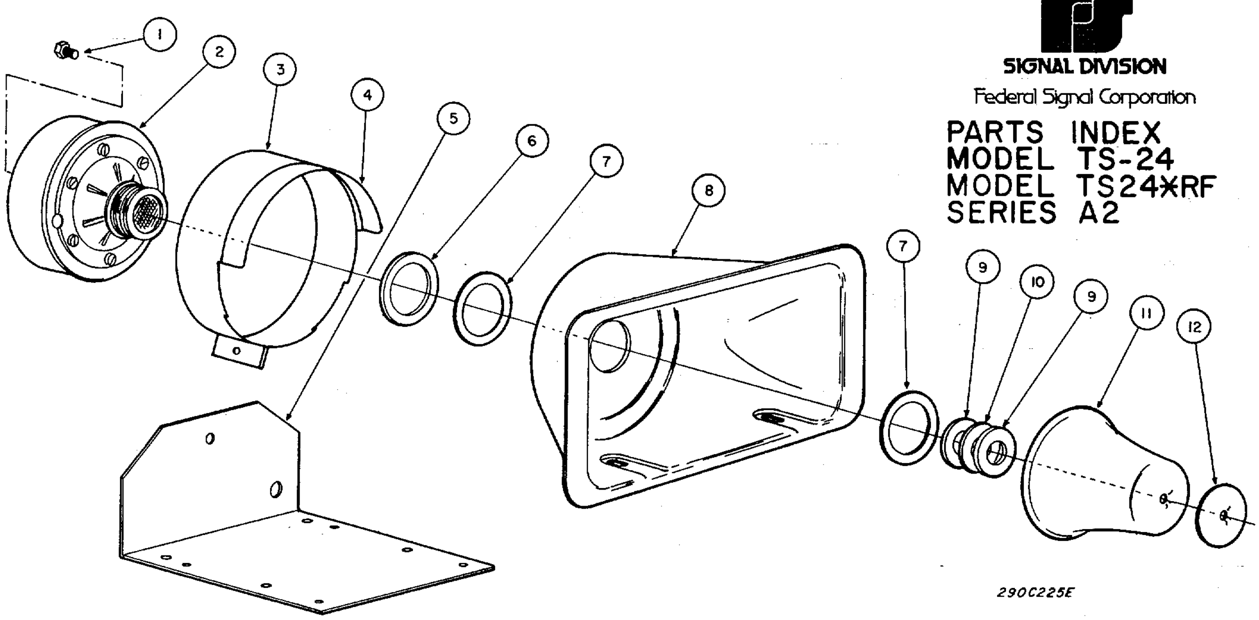
Item No.	Description	Part no.	Qty.
1	Driver (Gray)	8287B321	1
2	Washer, Steel	7072A137	2
3	Washer, Vellutex	8283A451	2
4	Bracket Assembly, Speaker	8470B160	1
5	Projector (Black)	8283B527-03	1
6	Washer, Taper Rubber	8240A022	2
7	Washer, Vellutex	8283A453	1
8	Washer, Rubber	8283A452	2
9	Cone (Black)	8283B500-01	1
10	Nameplate	8146A507-11	1
Not Shown			
	Accessory Kit, For Under-Hood Mounting	8470A128	1AR
	Replacement Head Kit (including coil and diaphram)	8287A162	1AR

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description, and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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PARTS INDEX
MODEL TS-24
MODEL TS24*RF
SERIES A2

PPL 0049 | SPEAKER ASSEMBLY | AUGUST 1981

PARTS LIST

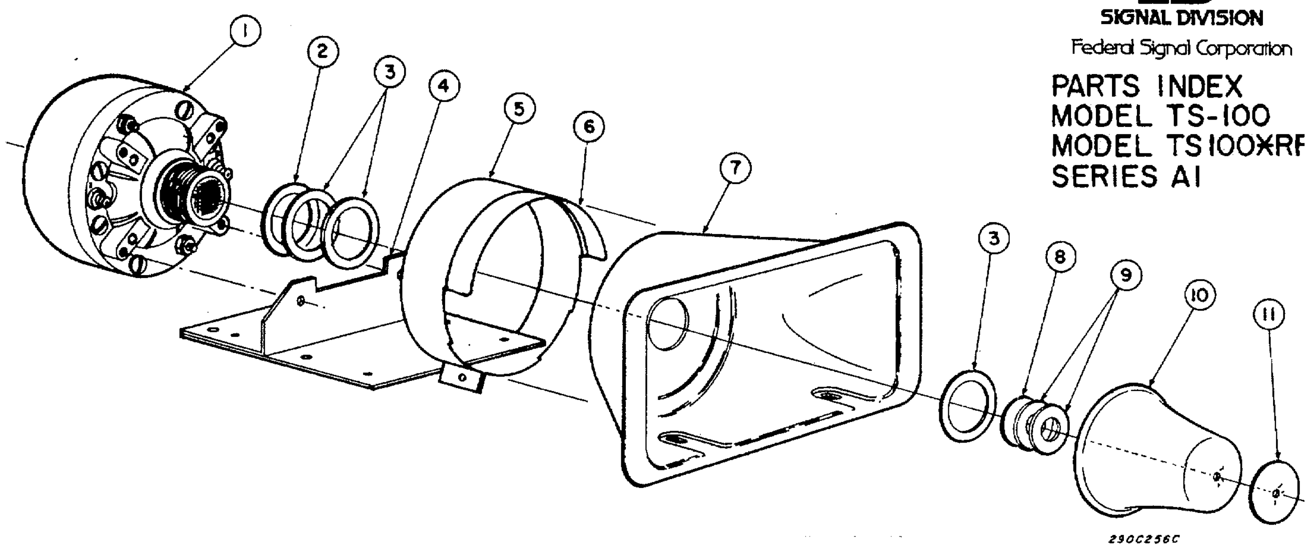
Item No.	Description	Part No.	Qty.
1	1/4-28 x 1/2 Screw, Hex Hd.	7000A316-08	1
2	Driver, (gray) Model TS-24	8283B433	1 AR
	Driver, (black) Model TS24*RF	8283B433-01	
3	Weather Guard Assembly (Model TS24*RF Only)	8470A218	1 AR
4	Gasket, Weather Guard (Model TS24*RF Only)	8470A219	1 AR
5	Bracket, Speaker	8470C121	1
6	Washer, Steel	7072A137	1
7	Washer, Vellutex	8283A451	2
8	Projector	8470D118	1
9	Washer, Vellutex	8283A453	2
10	Washer, Rubber	8283A452	1
11	Cone, (gray) Model TS24*RF	8583B500	1 AR
	Cone, (black) Model TS-24	8583B500-01	
12	Nameplate	8146A507-01	1
Not Shown			
	Coil and Diaphram Assembly (part of item 2)	8287A164	1
	Accessory Kit for Under-Hood Mounting	8470A128	1 AR

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, voltage, description, and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

Federal Signal Corporation
Signal Division
136 th and Western Avenue
Blue Island, Illinois 60406

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SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX
MODEL TS-100
MODEL TS100*RF
SERIES A1

Models : TS-100 and TS100*RF

PPL 0050 SPEAKER ASSEMBLY AUGUST 1981

PARTS LIST

Item No.	Description	Part No.	Qty.
1	Driver, (gray) Model TS-100	8287B321A	1 AR
	Driver, (black) Model TS100*RF	8287B321A-01	
2	Washer, Steel	7072A137	1
3	Washer, Vellutex	8283A451	3
4	Bracket Assembly, Speaker	8470B124	1
5	Weather Guard Assembly (Model TS100* Only)	8470A218	1 AR
6	Gasket, Weather Guard (Model TS100*RF Only)	8470A219	1 AR
7	Projector	8470D118	1
8	Washer, Vellutex	8283A453	1
9	Washer, Rubber	8283A452	2
10	Cone, White (Model TS100*RF Only)	8283B500-02	1 AR
	Cone, Black (Model TS-100 Only)	8283B500-01	
11	Nameplate	8146A507-08	1
Not Shown			
	Spacer, Driver	8287A320	1 AR
	Accessory Kit for Under-Hood Mounting	8470A128	1 AR
	Replacement Head Kit (including coil and diaphram)	8287A162	1 AR

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, voltage, description, and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

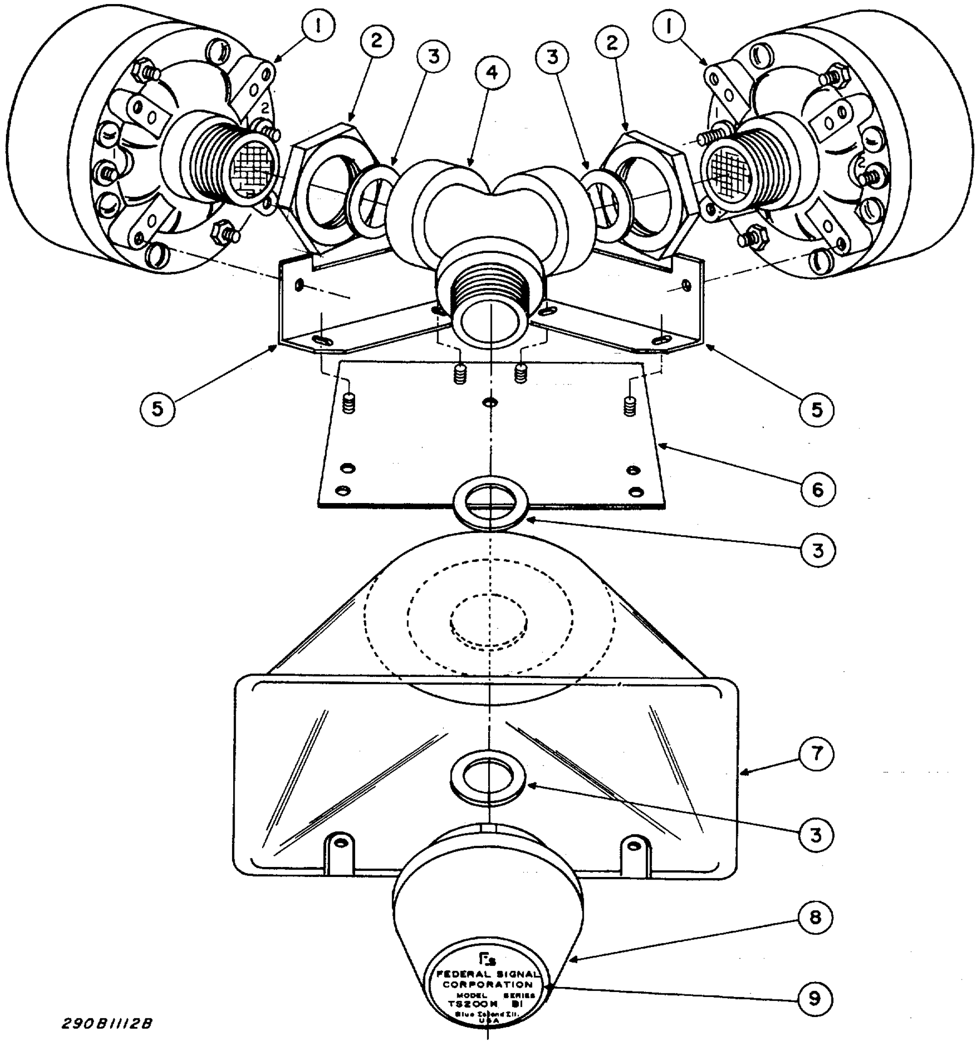
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PARTS INDEX MODEL TS200*

SERIES B1



PPL 0135
PARTS LIST

MODEL TS200* SPEAKER
Series B1

AUGUST 1981

Item No.	Description	Part No.	Qty.
1	Driver, 100 Watt, Gray	8287B321	2
2	1-3/8-18 Jam Nut	8542A167	2
3	Washer, Velutex	8283A451	4
4	Coupler, Driver	8542A108	1
5	Bracket, Driver	8542A107	2
6	Mounting Plate Assembly	8542B105	1
7	Projector, Molded	8470D118	1
8	Cone (supplied with rubber tip washer & vellutex gasket)	8283B327	1
9	Nameplate	8146A507-15	1

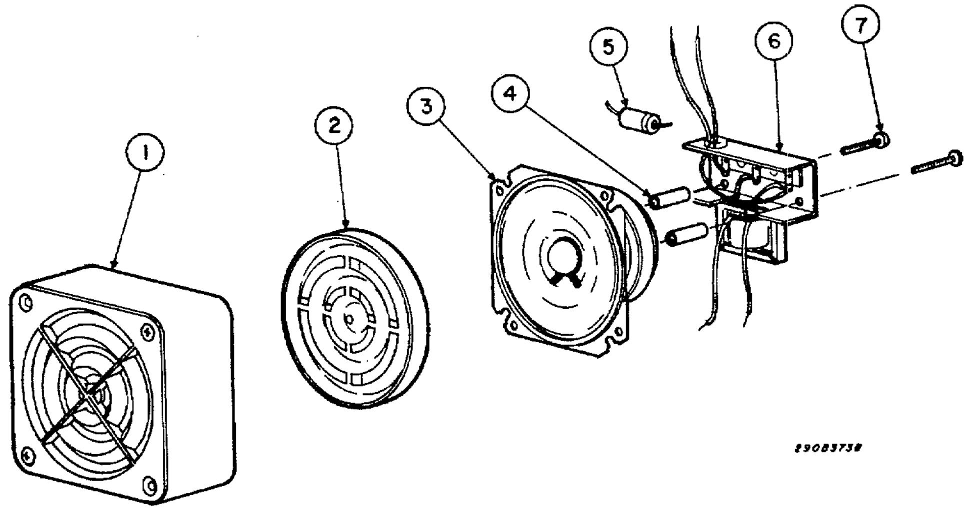
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PARTS INDEX MODEL 950 & 50



PPL0103

PARTS LIST

MODEL 50 AND 950
SPEAKER ASSY.

AUGUST 1981

Index No.	Description	Part No.	Qty.
1	Housing, Speaker (Model 950)	8476C001-01	1AR
	Housing, Speaker (Model 50)	8476C001-02	
2	Baffle, Housing (Model 950)	8476B002-01	1AR
	Baffle, Housing (Model 50)	8476B002-02	
3	Speaker	8476C003	1
4	Spacer	8476A008	2
5	Capacitor (Model 950 only)	108A129	1
6	Bracket and Transformer Assy.	8476B005	1
7	Screw, Pan Hd., 8-32	7006A011-16	2

Refer to PARTS PRICE LIST (Part No. PPL1001) for prices of parts.

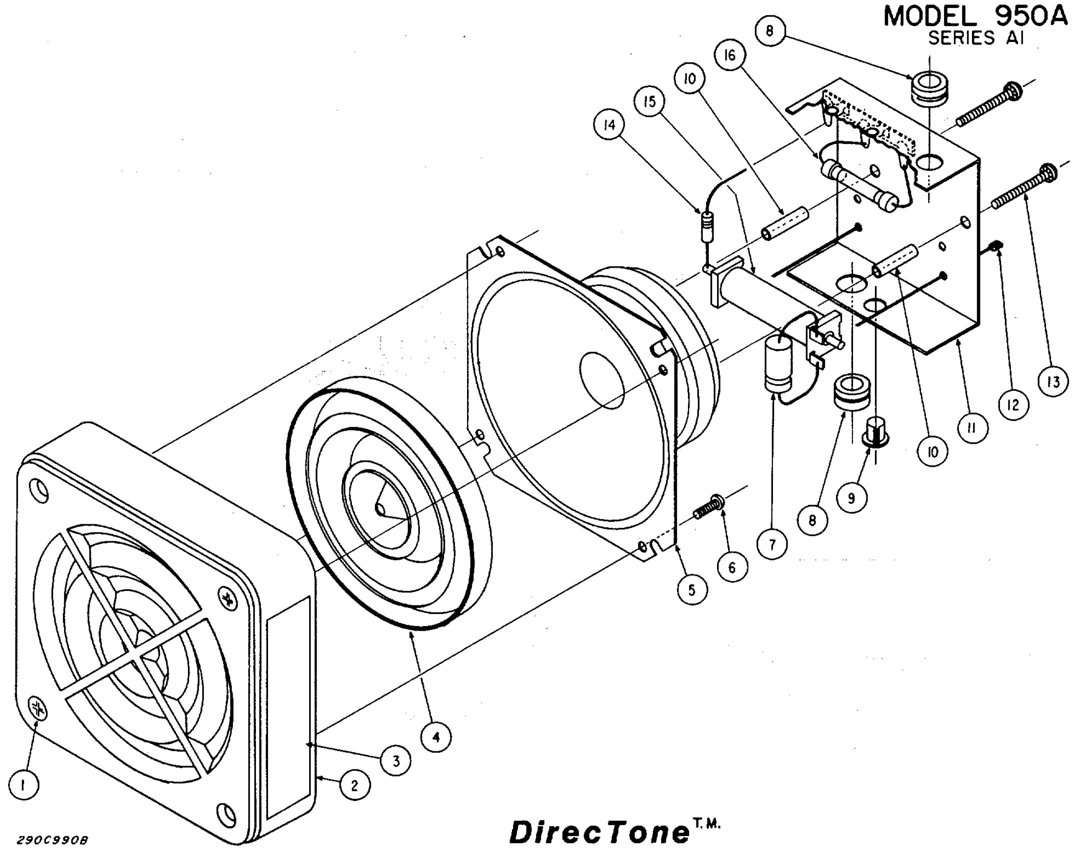
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SIGNAL DIVISION Federal Signal Corporation

PARTS INDEX DirecTone™ MODEL 950A

SERIES AI



DirecTone™

PPL 0121 MODEL 950A AUGUST 1981

PARTS LIST

Index No.	Description	Part No.	Qty.
1	8-32 x 1/2 Screw, Thd. Frm., Oval Phl. Hd.	7011A022-08	2
2	Housing, Speaker (red)	8476C001-01	1
3	Nameplate	8146A556-01	1
4	Baffel, Housing (red)	8476B002-01	1
5	Speaker, High Impedance	8476C036	1
6	6-32 x 3/8 Screw, Thd. Frm., Pan Hd.	7011A017-06	4
7	Capacitor, Lytic 10 mfd 50V	108A129	1
8	Bushing, Strain Relief	8476A007	2
9	Bushing, Snap	8470A206	1
10	Spacer	8476A008	2
11	Bracket Assembly	8476A026	1
12	Clamp, Cable	150A109	2
13	8-32 x 1 Mach. Screw, Phil. Pan Hd.	7006A011-16	2
14	Resistor, 22 Ohm 0.5 W 10%	100A367	1
15	Relay, Reed	8476A029	1
16	Fuse, 1/8 Amp.	148A129	1
Not Shown			
	Accessory Kit	8476A038	1

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, series, voltage, description, and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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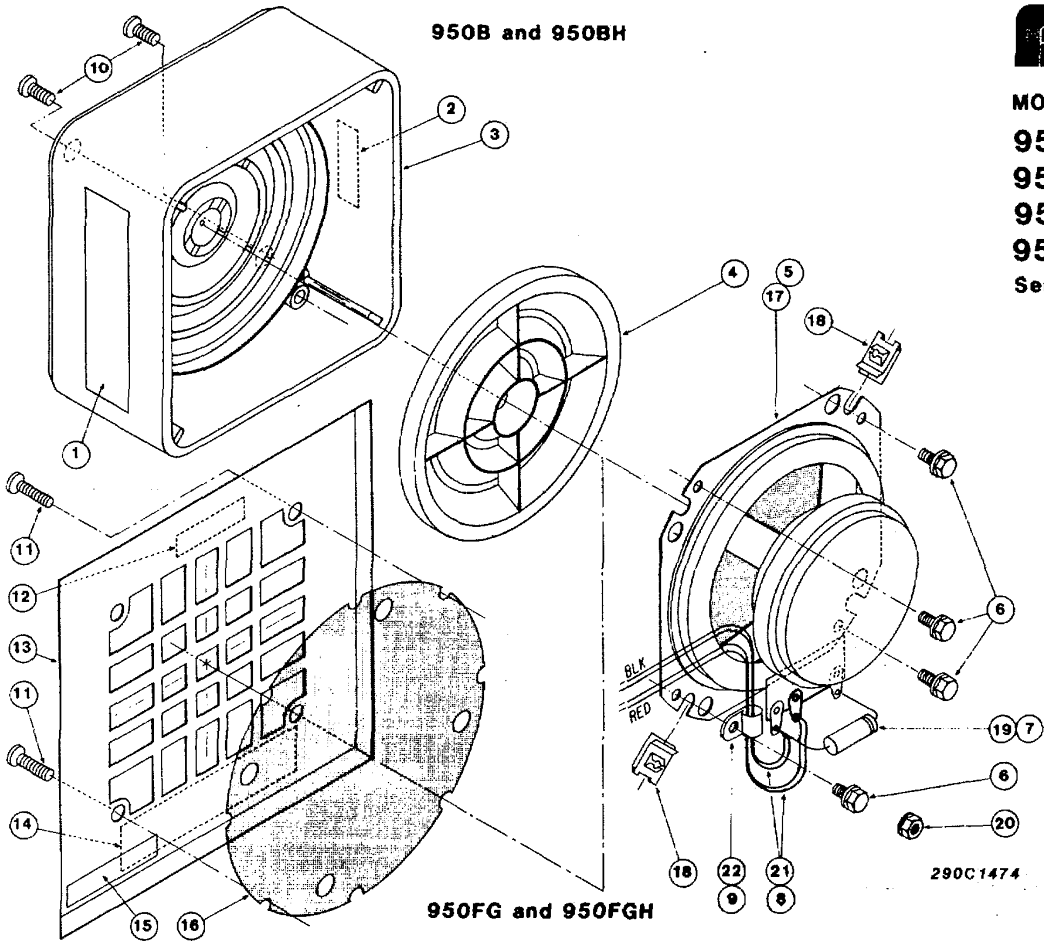
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SIGNAL DIVISION
Federal Signal Corporation

MODELS :

950B
950BH
950FG
950FGH

Series B1



PPL 0161
PARTS LIST

MODELS : 950B and 950BH
(Item No's. 1 thru 10)

Item No.	Description	Part Number	950B *25 BG	950B *25 R	950B BG	950B R	950BH *25 BG	950BH *25 R	950BH BG	950BH R
1	Nameplate	8146A759-01	1	1	0	0	0	0	0	0
	Nameplate	8146A759-02	0	0	0	0	1	1	0	0
	Nameplate		0	0	0	0	0	0	0	0
	Nameplate		0	0	0	0	0	0	0	0
2	Label, UL	8146A514	1	1	0	0	1	1	0	0
3	Housing , Beige	8476D051-02	1	0	0	0	0	0	0	0
	Housing , Red	8476D051-01	0	1	0	0	0	0	0	0
	Housing , Beige , H	8476C001-03	0	0	0	0	1	0	0	0
	Housing , Red , H	8476C001-01	0	0	0	0	0	1	0	0
4	Baffel , Beige	8476C050-02	1	0	0	0	0	0	0	0
	Baffel , Red	8476C050-01	0	1	0	0	0	0	0	0
	Baffel , Beige , H	8476B002-03	0	0	0	0	1	0	0	0
	Baffel , Red , H	8476B002-01	0	0	0	0	0	1	0	0
5	Speaker	8476C043	1	1	0	0	1	1	0	0
6	8-32 Scr. Hex Wsh. Hd.	7011A117-08	4	4	0	0	0	0	0	0
	6-32 Scr. Hex Wsh. Hd.	7011A061-06	0	0	0	0	4	4	0	0
7	Capacitor, 10mfd 50V	108A129	1	1	0	0	1	1	0	0
	Capacitor		0	0	0	0	0	0	0	0
	Capacitor		0	0	0	0	0	0	0	0
	Capacitor		0	0	0	0	0	0	0	0
8	Wire Set	310A734	1	1	0	0	0	0	0	0
	Wire Set , H	310A753	0	0	0	0	1	1	0	0
9	Clamp , Cable	150A117	1	1	0	0	1	1	0	0
10	8-32 Scr. Ovl. Hd. TF	7011A116-08	2	2	0	0	0	0	0	0
	8-32 Scr. Ovl. Hd. TF	7011A022-08	0	0	0	0	2	2	0	0
Not Shown	Accessory Kit	8476A044	1	1	0	0	0	0	0	0
	Accessory Kit	8476A016	0	0	0	0	1	1	0	0

MODELS : 950FG and 950FGH
(Item No's. 11 thru 22)

AUGUST 1981

Item No.	Description	Part Number	950FG *25 BG	950FG *25 R	950FG BG	950FG R	950FGH *25 BG	950FGH *25 R	950FGH BG	950FGH R
11	8-32 Scr. Phl. Ovl. Hd. TF	7011A022-12	2	2	2	0	2	2	0	0
12	Label , UL	8146A514	1	1	0	0	1	1	0	0
13	Grille, Flush, Beige	8435C061-11	1	0	0	0	1	0	0	0
	Grille, Flush, Red	8435C061-05	0	1	0	0	0	1	0	0
14	Nameplate	8146A745-01	1	1	0	0	0	0	0	0
	Nameplate	8146A745-02	0	0	0	0	1	1	0	0
	Nameplate		0	0	0	0	0	0	0	0
	Nameplate		0	0	0	0	0	0	0	0
15	Label, Vandal Resistant	161A279	1	1	0	0	1	1	0	0
16	Screen	8476A048	1	1	0	0	1	1	0	0
17	Speaker	8476C043	1	1	0	0	1	1	0	0
18	Nut, Spd. U Type Slt 8	7060A000	2	2	0	0	2	2	0	0
19	Capacitor 10mfd 50V	108A129	1	1	0	0	1	1	0	0
	Capacitor		0	0	0	0	0	0	0	0
	Capacitor		0	0	0	0	0	0	0	0
	Capacitor		0	0	0	0	0	0	0	0
20	8-32 Nut, Keps, Ext.	7058A022	1	1	0	0	1	1	0	0
21	Wire Set	310A734	1	1	0	0	0	0	0	0
	Wire Set, H	310A753	0	0	0	0	1	1	0	0
22	Clamp, Cable	150A117	1	1	0	0	1	1	0	0
Not Shown	*Accessory Kit*	*8476A058*	*1*	*1*	*0*	*0*	1	1	0	0

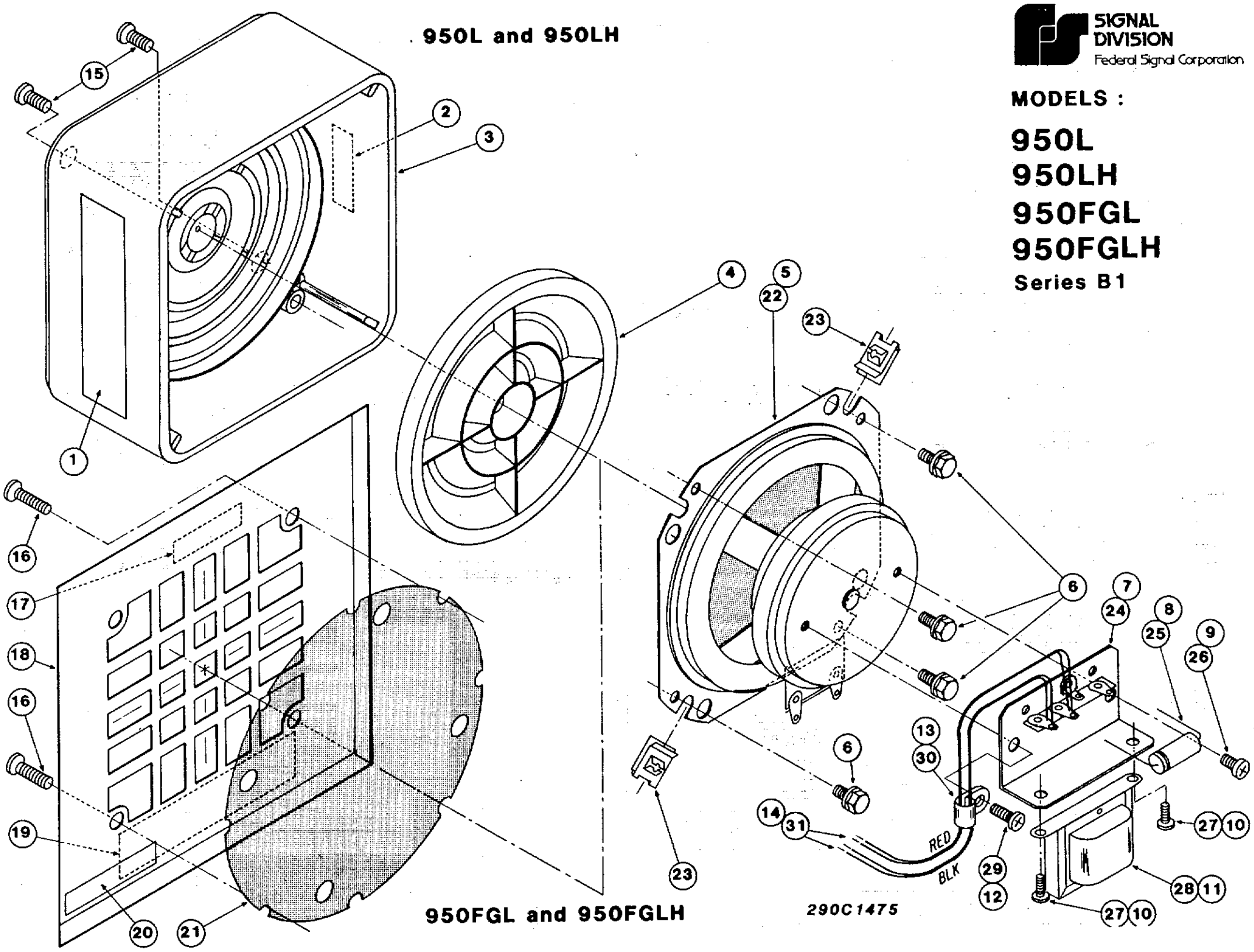
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SIGNAL DIVISION
Federal Signal Corporation

MODELS :

950L
950LH
950FGL
950FGLH

Series B1



PPL 0162
PARTS LIST

MODELS : 950L and 950LH
(Item No's. 1 thru 15)

Item No.	Description	Part Number	950L *25 BG	950L *25 R	950L *70 BG	950L *70 R	950LH *25 BG	950LH *25 R	950LH *70 BG	950LH *70 R
1	Nameplate	8146A759-05	1	1	0	0	0	0	0	0
	Nameplate	8146A759-09	0	0	1	1	0	0	0	0
	Nameplate	8146A759-06	0	0	0	0	1	1	0	0
	Nameplate	8146A759-10	0	0	0	0	0	0	1	1
2	Label , UL	8146A514	1	1	1	1	1	1	1	1
3	Housing, Beige	8476D051-02	1	0	1	0	0	0	0	0
	Housing, Red	8476D051-01	0	1	0	1	0	0	0	0
	Housing, Beige, H	8476C001-03	0	0	0	0	1	0	1	0
	Housing, Red, H	8476C001-01	0	0	0	0	0	1	0	1
4	Baffle, Beige	8476C050-02	1	0	1	0	0	0	0	0
	Baffle, Red	8476C050-01	0	1	0	1	0	0	0	0
	Baffel, Beige, H	8476B002-03	0	0	0	0	1	0	1	0
	Baffel, Red, H	8476B002-01	0	0	0	0	0	1	0	1
5	Speaker, 6 Watt	8476C053	1	1	1	1	1	1	1	1
6	8-32 Scr. Hex Wsh. Hd.	7011A117-08	4	4	4	4	0	0	0	0
	6-32 Scr. Hex Wsh. Hd.	7011A061-06	0	0	0	0	4	4	4	4
7	Bracket Assembly	8476A064	1	1	1	1	1	1	1	1
8	Capacitor, 10 mfd 50V	108A129	1	1	0	0	1	1	0	0
	Capacitor, 1.2 mfd 150V	108A141	0	0	1	1	0	0	1	1
9	8-32 Scr. Phl. Rd. Hd.	7000A101-04	1	1	1	1	1	1	1	1
10	6-32 Scr. Phl. Pan Hd. TF	7011A041-04	2	2	2	2	2	2	2	2
11	Transformer	8476B040	1	1	0	0	0	0	0	0
	Transformer	8476B074	0	0	1	1	0	0	0	0
	Transformer, H	8476B070	0	0	0	0	1	1	0	0
	Transformer, H	8476B075	0	0	0	0	0	0	1	1
12	8-32 Scr. Phl. Pan Hd.	7000A408-05	1	1	1	1	1	1	1	1
13	Clamp, Cable	150A117	1	1	1	1	1	1	1	1
14	Wire Set	310A734	1	1	1	1	0	0	0	0
	Wire Set, H	310A753	0	0	0	0	1	1	1	1
15	Scr. Ovl. Phl. Hd.	7011A116-08	2	2	2	2	0	0	0	0
	Scr. Ovl. Phl. Hd.	7011A022-08	0	0	0	0	2	2	2	2
Not Shown	Accessory Kit	8476A044	1	1	1	1	0	0	0	0
	Accessory Kit	8476A016	0	0	0	0	1	1	1	1

MODELS : 950FGL and 950FGLH
(Item No's. 16 thru 31)

AUGUST 198

Item No.	Description	Part Number	950FGL *25 BG	950FGL *25 R	950FGL *70 BG	950FGL *70 R	950FGLH *25 BG	950FGLH *25 R	950FGLH *70 BG	950FGLH *70 R
16	8-32 Scr. Phl. Ovl. Hd. TF	7011A022-12	2	2	2	2	2	2	2	2
17	Label, UL	8146A514	1	1	1	1	1	1	1	1
18	Grill, Flush, Beige	8435C061-11	1	0	1	0	1	0	1	0
	Grill, Flush, Red	8435C061-05	0	1	0	1	0	1	0	1
19	Nameplate	8146A745-03	1	1	0	0	0	0	0	0
	Nameplate	8146A745-07	0	0	1	1	0	0	0	0
	Nameplate	8146A745-04	0	0	0	0	1	1	0	0
	Nameplate	8146A745-08	0	0	0	0	0	0	1	1
20	Label, Vandal Resistant	161A279	1	1	1	1	1	1	1	1
21	Screen	8476A048	1	1	1	1	1	1	1	1
22	Speaker, 6 Watt	8476C053	1	1	1	1	1	1	1	1
23	Nut, Spd. U Type Slt. 8	7060A000	2	2	2	2	2	2	2	2
24	Bracket Assembly	8476A064	1	1	1	1	1	1	1	1
25	Capacitor, 10 mfd 50V	108A129	1	1	0	0	1	1	0	0
	Capacitor, 1.2 mfd 150V	108A141	0	0	1	1	0	0	1	1
26	8-32 Scr. Phl. Rd. Hd.	7000A101-04	1	1	1	1	1	1	1	1
27	6-32 Scr. Phl. Pan Hd. TF	7011A041-04	2	2	2	2	2	2	2	2
28	Transformer	8476B040	1	1	0	0	0	0	0	0
	Transformer	8476B074	0	0	1	1	0	0	0	0
	Transformer, H	8476B070	0	0	0	0	1	1	0	0
	Transformer , H	8476B075	0	0	0	0	0	0	1	1
29	8-32 Scr. Phl. Pan Hd.	7000A408-05	1	1	1	1	1	1	1	1
30	Clamp, Cable	150A117	1	1	1	1	1	1	1	1
31	Wire Set	310A734	1	1	1	1	0	0	0	0
	Wire Set, H	310A753	0	0	0	0	1	1	1	1
Not Shown	Accessory Kit	8476A058	1	1	1	1	1	1	1	1

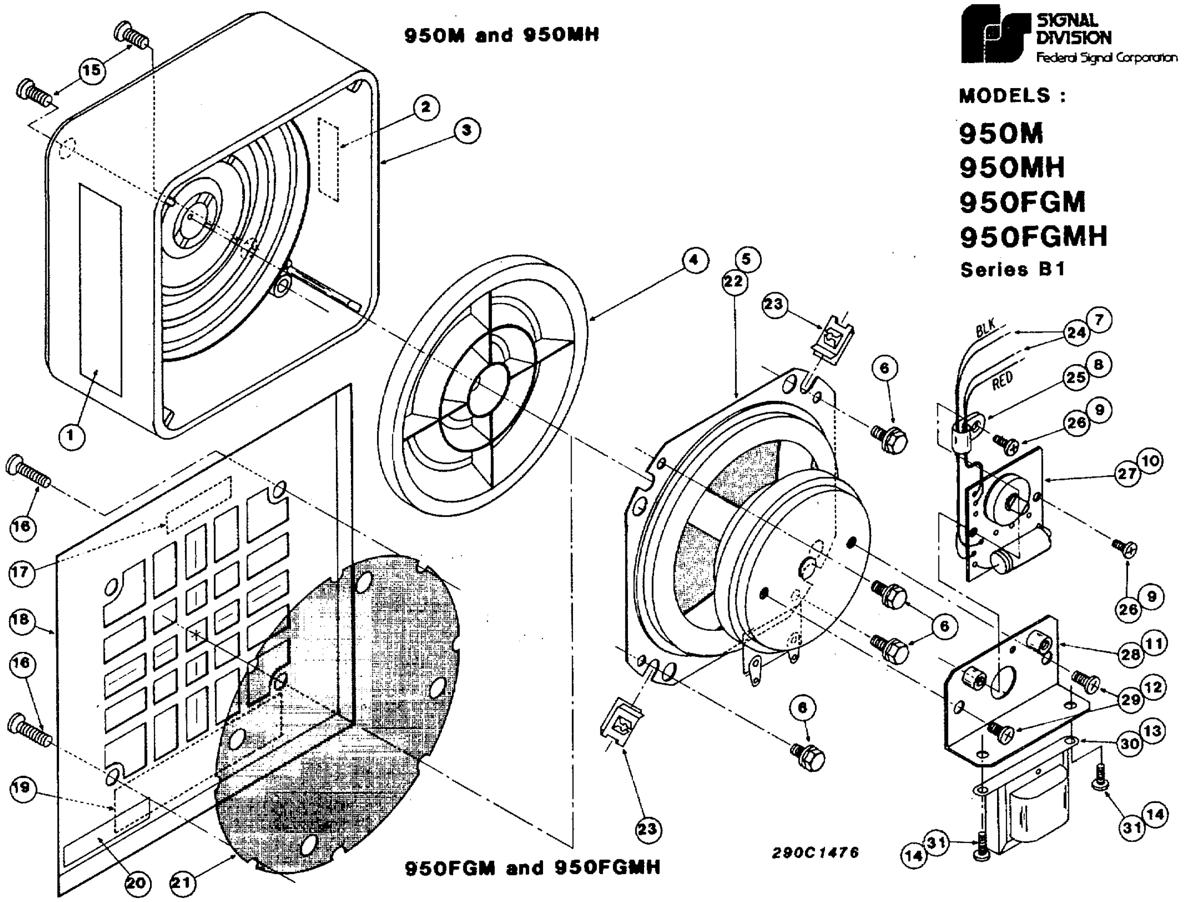
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SIGNAL DIVISION
Federal Signal Corporation

MODELS :

950M
950MH
950FGM
950FGMH

Series B1



PPL 0163
PARTS LIST

MODELS : 950M and 950MH
(Item No's. 1 thru 15)

Item No.	Description	Part Number	950M *25 BG	950M *25 R	950M *70 BG	950M *70 R	950MH *25 BG	950MH *25 R	950MH *70 BG	950MH *70 R
1	Nameplate	8146A759-03	1	1	0	0	0	0	0	0
	Nameplate	8146A759-07	0	0	1	1	0	0	0	0
	Nameplate	8146A759-04	0	0	0	0	1	1	0	0
	Nameplate	8146A759-08	0	0	0	0	0	0	1	1
2	Label, UL	8146A514	1	1	1	1	1	1	1	1
3	Housing, Beige	8476D051-02	1	0	1	0	0	0	0	0
	Housing, Red	8146D051-01	0	1	0	1	0	0	0	0
	Housing, Beige, H	8476C001-03	0	0	0	0	1	0	1	0
	Housing, Red, H	8476C001-01	0	0	0	0	0	1	0	1
4	Baffle, Beige	8476C050-02	1	0	1	0	0	0	0	0
	Baffle, Red	8476C050-01	0	1	0	1	0	0	0	0
	Baffle, Beige, H	8476B002-03	0	0	0	0	1	0	1	0
	Baffle, Red, H	8476B002-01	0	0	0	0	0	1	0	1
5	Speaker, 6 W	8476C053	1	1	1	1	1	1	1	1
6	8-32 Scr. Hex Wsh. Hd.	7011A117-08	4	4	4	4	0	0	0	0
	6-32 Scr. Hex Wsh. Hd.	7011A061-06	0	0	0	0	4	4	4	4
7	Wire Set	310A734	1	1	1	1	0	0	0	0
	Wire Set, H	310A753	0	0	0	0	1	1	1	1
8	Clamp, Cable	150A117	1	1	1	1	1	1	1	1
9	6-32 Scr. Phl. Pan Hd.	7000A404-05	2	2	2	2	2	2	2	2
10	Board Assembly, PC	200B761	1	1	0	0	0	0	0	0
	Board Assembly, PC	200B761-02	0	0	1	1	0	0	0	0
	Board Assembly, PC	200B761-01	0	0	0	0	1	1	0	0
	Board Assembly, PC	200B761-03	0	0	0	0	0	0	1	1
	Replacement Parts									
10a	Capacitor, 40 mfd 50V	108A130	1	1	0	0	1	1	0	0
	Capacitor, 10ufd 150V	108A140	0	0	1	1	0	0	1	1
10b	Switch, Rotary 2P3T	122A182	1	1	1	1	1	1	1	1
10c	Lable, Switch, Watts	8146A770	1	1	1	1	1	1	1	1
11	Bracket Assembly	8476A062	1	1	1	1	1	1	1	1
12	8-32 Scr. Phl. Rd. Hd.	7000A101-04	2	2	2	2	2	2	2	2
13	Transformer	8476B052	1	1	0	0	0	0	0	0
	Transformer	8476B072	0	0	1	1	0	0	0	0
	Transformer	8476B060	0	0	0	0	1	1	0	0
	Transformer	8476B073	0	0	0	0	0	0	1	1
14	6-32 Scr. Phl. Pan Hd.	7011A041-04	2	2	2	2	2	2	2	2
15	Scr. Phl. Ovl. Hd.	7011A116-08	2	2	2	2	0	0	0	0
	Scr. Phl. Ovl. Hd.	7011A022-08	0	0	0	0	2	2	2	2
Not Shown :	Accessory Kit	8476A044	1	1	1	1	0	0	0	0
	Accessory Kit	8476A016	0	0	0	0	1	1	1	1

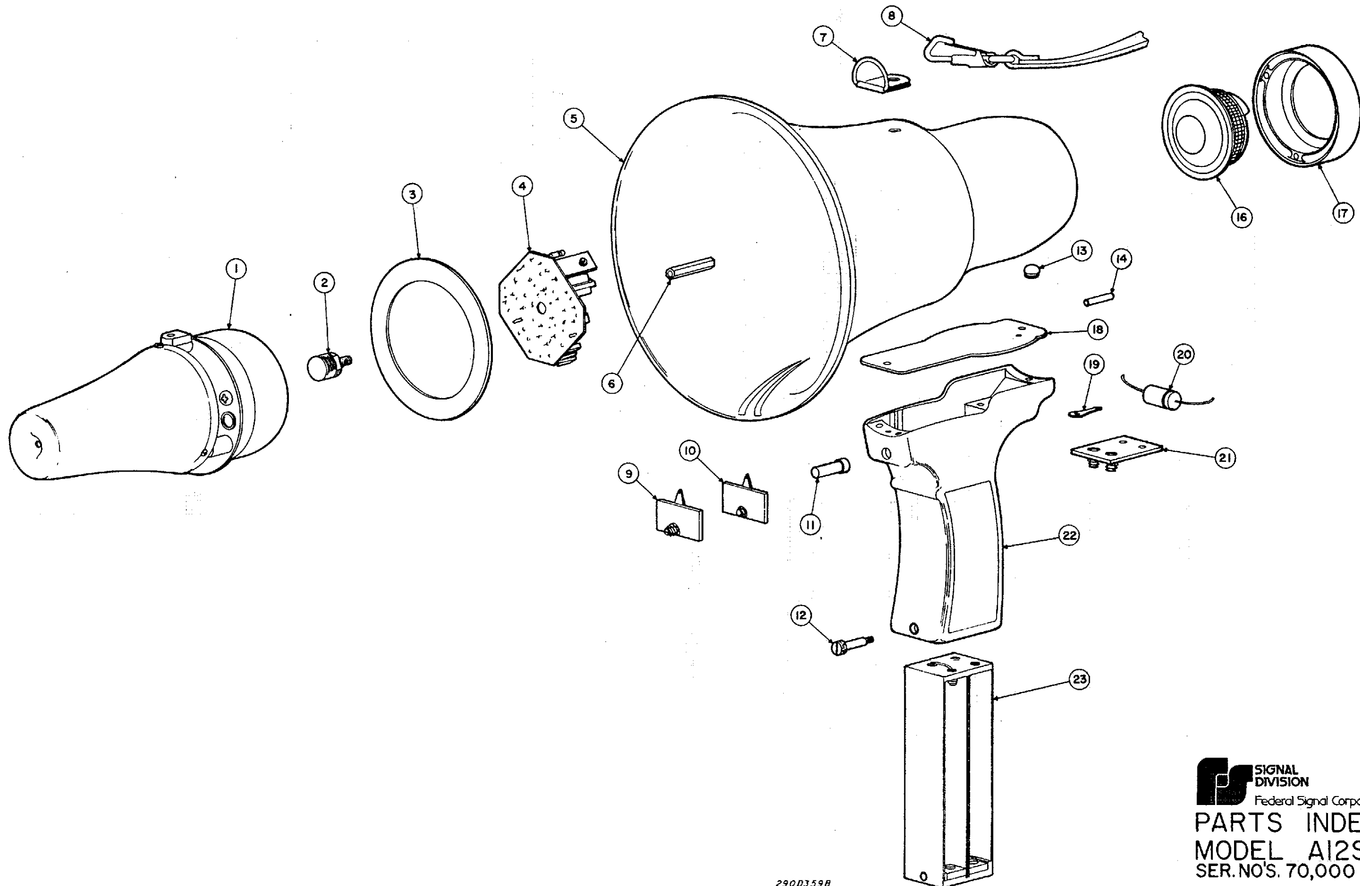
MODELS : 950FGM and 950FGMH
(Item No's. 16 thru 31)

AUGUST 1981

Item No.	Description	Part Number	950FGM *25 BG	950FGM *25 R	950FGM *70 BG	950FGM *70 R	950FGMH *25 BG	950FGMH *25 R	950FGMH *70 BG	950FGMH *70 R
16	8-32 Scr. Phl. Ovl. Hd. TF.	7011A022-12	2	2	2	2	2	2	2	2
17	Label, UL	8146A514	1	1	1	1	1	1	1	1
18	Grill, Flush, Beige	8435C061-11	1	0	1	0	1	0	1	0
	Grill, Flush, Red	8435C061-05	0	1	0	1	0	1	0	1
19	Nameplate	8146A745-05	1	1	0	0	0	0	0	0
	Nameplate	8146A745-09	0	0	1	1	0	0	0	0
	Nameplate	8146A745-06	0	0	0	0	1	1	0	0
	Nameplate	8146A745-10	0	0	0	0	0	0	1	1
20	Label, Vandal Resistant	161A279	1	1	1	1	1	1	1	1
21	Screen	8476A048	1	1	1	1	1	1	1	1
22	Speaker, 6 W	8476C053	1	1	1	1	1	1	1	1
23	Nut, Spd. U Type Slt. 8	7060A000	2	2	2	2	2	2	2	2
24	Wire Set	310A734	1	1	1	1	0	0	0	0
	Wire Set, H	310A753	0	0	0	0	1	1	1	1
25	Clamp, Cable	150A117	1	1	1	1	1	1	1	1
26	6-32 Scr. Phl. Pan Hd.	7000A404-05	2	2	2	2	2	2	2	2
27	Board Assembly, PC	200B761	1	1	0	0	0	0	0	0
	Board Assembly, PC	200B761-02	0	0	1	1	0	0	0	0
	Board Assembly, PC	200B761-01	0	0	0	0	1	1	0	0
	Board Assembly, PC	200B761-03	0	0	0	0	0	0	1	1
	Replacement Parts									
27a	Capacitor, 40 mfd 50V	108A130	1	1	0	0	1	1	0	0
	Capacitor, 10ufd 150V	108A140	0	0	1	1	0	0	1	1
27b	Switch, Rotary, 2P3T	122A182	1	1	1	1	1	1	1	1
27c	Label, Switch, Watts	8146A770	1	1	1	1	1	1	1	1
28	Bracket Assembly	8476A062	1	1	1	1	1	1	1	1
29	8-32 Scr. Phl. Rd. Hd.	7000A101-04	2	2	2	2	2	2	2	2
30	Transformer	8476B052	1	1	0	0	0	0	0	0
	Transformer	8476B072	0	0	1	1	0	0	0	0
	Transformer	8476B060	0	0	0	0	1	1	0	0
	Transformer	8476B073	0	0	0	0	0	0	1	1
31	6-32 Scr. Phl. Pan Hd.	7011A041-04	2	2	2	2	2	2	2	2
Not Shown	Accessory Kit	8476A058	1	1	1	1	1	1	1	1

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, series, voltage, description, and part number.
Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.
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ELECTRONICS



SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX
MODEL A12S
SER. NO'S. 70,000 & UP
MODEL A12SA
SER. NO'S. 6,000 & UP

Item No.	Description	Part No.	Qty.
1	Driver Assembly	132C107	1
2	Stud Adapter	231A110	1
3	Gasket, Driver	288A015	1
4	Amplifier Assembly	200C507	1
5	Horn Assembly, Red, Model A12SA	200C167-11	1 AR
	Horn Assembly, Blue, Model A12S	200C167-12	
	Horn Assembly, Yellow, Model A12S	200C167-13	
	Horn Assembly, White, Model A12S	200C167-14	
6	Post, Threaded	231A111	1
7	Clip and Dee	144A105-01	1
8	Strap, Carrying	288B014	1
9	Switch Plate Assembly, Long	200A176	1
10	Switch Plate Assembly, Short	200A176-01	1
11	Switch Button, Red, Model A12SA	288A010-11	1 AR
	Switch Button, Blue, Model A12S	288A010-12	
	Switch Button, Yellow, Model A12S	288A010-13	
	Switch Button, Red, Model A12S	288A010-14	
12	Shoulder Screw, 6-32 x 1 in.	220A198	1
13	Plug, Rubber	288A016	1
14	Tubing	308A012	1
16	Microphone	137B115	1
17	Microphone Housing, Red, Model A12SA	170B155-11	1 AR
	Microphone Housing, Blue, Model A12S	170B115-12	
	Microphone Housing, Yellow, Model A12S	170B115-13	
	Microphone Housing, Red, Model A12S	170B115-14	
18	Handle, Gasket	288B013	1
19	Lug, Terminal	224A121	2
20	Capacitor, 100UF	108A123	1
21	Cartridge Contact Plate Assembly	200A173	1
22	Handle, Red, Model A12SA	154D106-11	1 AR
	Handle, Blue, Model A12S	154D106-12	
	Handle, Yellow, Model A12S	154D106-13	
	Handle, Red, Model A12S	154D106-14	
23	Cartridge Assembly, Red, Model A12SA	200B177-11	1 AR
	Cartridge Assembly, Blue, Model A12S	200B177-12	
	Cartridge Assembly, Yellow Model A12S	200B177-13	
	Cartridge Assembly, Red, Model A12S	200B177-14	
Not Shown			
	Nameplate	8146A282-01	1
	Decal : press lips to mouthpiece	161A138	1
The following components are located on the Amplifier Assembly :			
	Resistor, Carbon, 15K Ohm, 10%, 1/4W	100A203	1
	Resistor, Carbon, 3300 Ohm, 10%, 1/4W	100A209	1
	Resistor, Carbon, 220 Ohm, 10%, 1/4W	100A219	1
	Resistor, Carbon, 4700 Ohm, 10%, 1/4W	100A224	1
	Resistor, Carbon, 270K Ohm, 10%, 1/4W	100A227	1
	Resistor, Carbon, 47K Ohm, 10%, 1/4W	100A228	1
	Resistor, Carbon, 100 Ohm, 10%, 1/4W	100A236	2
	Resistor, Carbon, 10 Ohm, 10%, 1/4W	100A251	3
	Resistor, Carbon, 470 Ohm, 10%, 1/4W	100A255	1
	Resistor, Carbon, 68K Ohm, 10%, 1/4W	100A261	1
	Resistor, WW, 0.1 Ohm, 10%, 2W	103A114	1
	Potentiometer, 5K Ohm	105B204-01	1
	Capacitor, Disc., 0.05UF	107A227	1
	Capacitor, Tantalum, 10UF, 10V	107A634	3
	Capacitor, Tantalum, 0.47UF, 15V	107A635	3
	Transformer, Output	120B132	1
	Transformer, Driver	120B133	1
	Transistor, 2N2925	125A119	1
	Transistor, TIS 92	125B132	1
	Transistor, 2N5296	125B415	2
	Printed Circuit Board	130C180	1
	Heat Sink	236A110	1

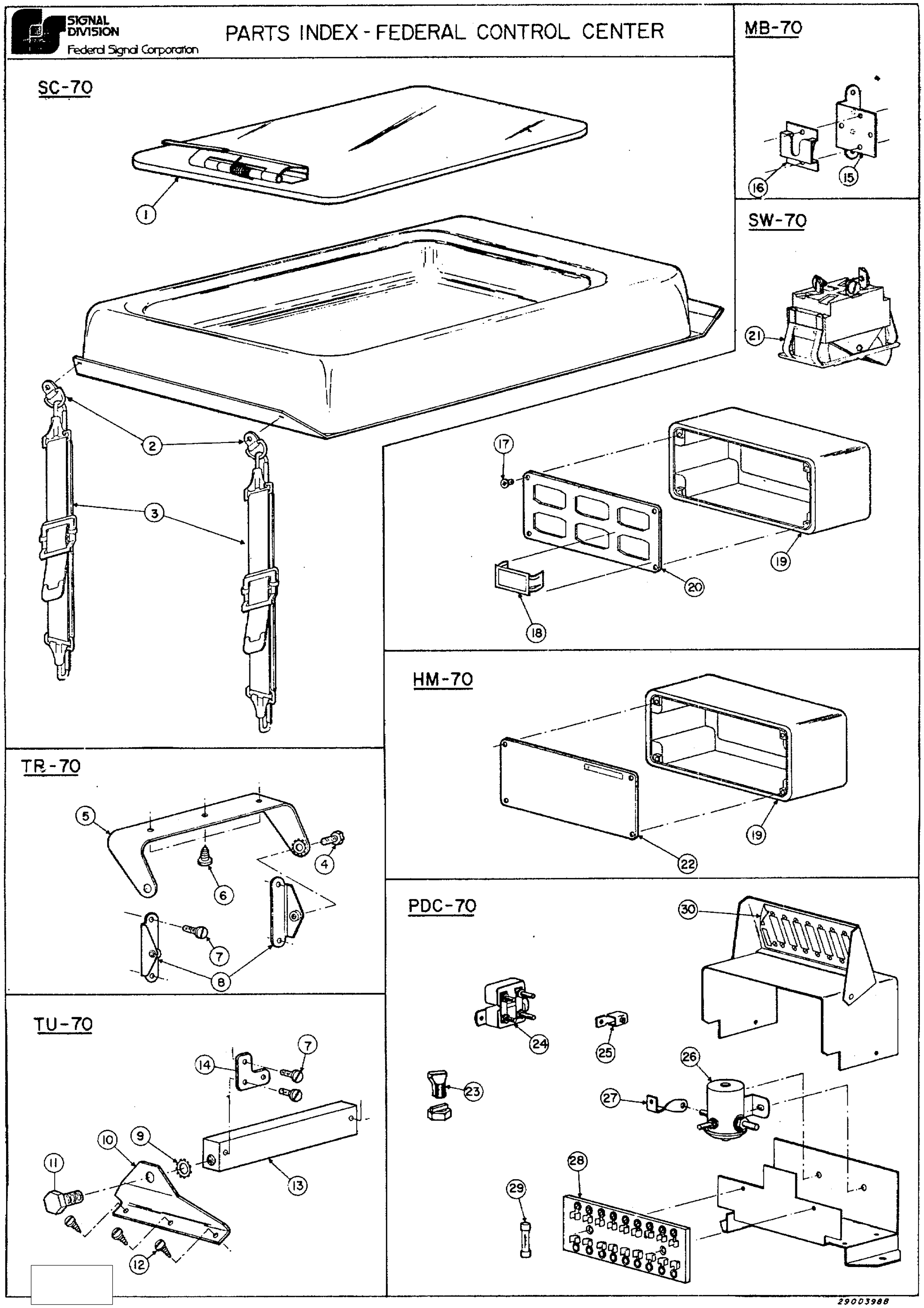
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PARTS INDEX - FEDERAL CONTROL CENTER



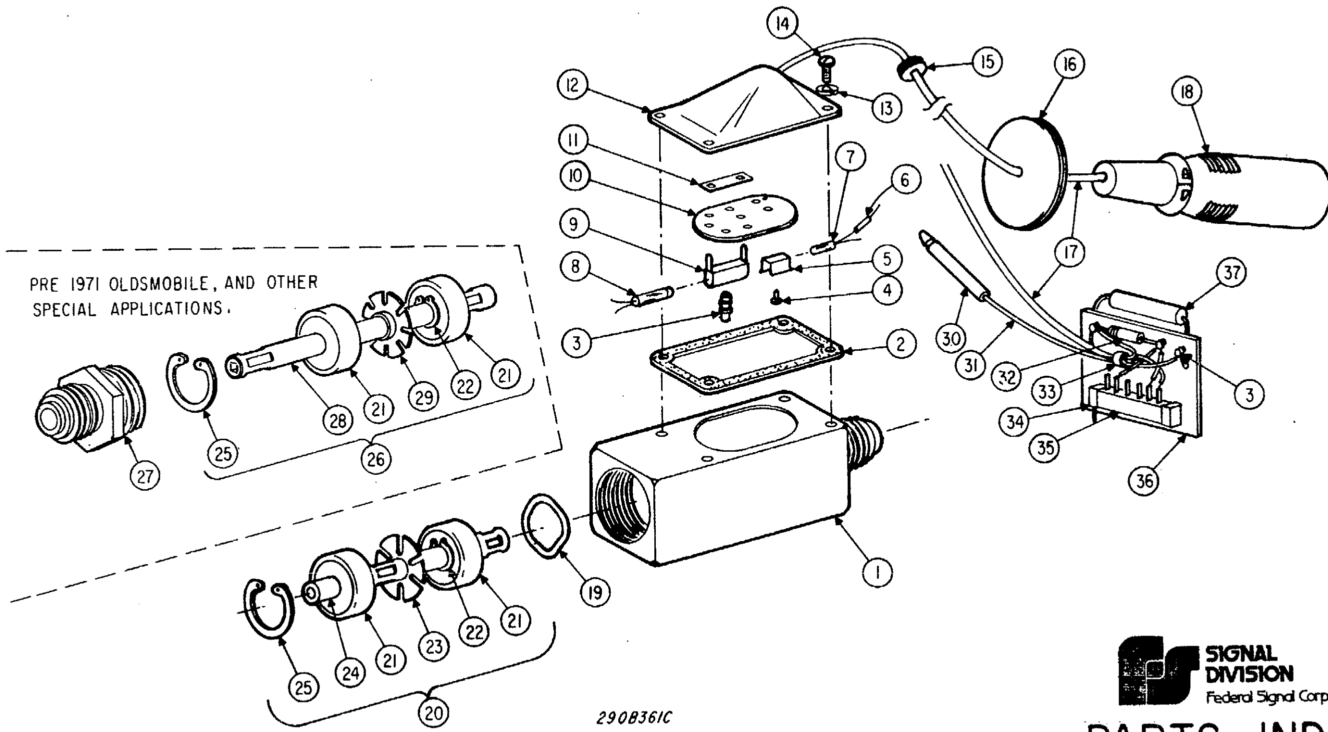
Index No.	Description	Part No.
1	Clipboard (includes Velcro strip)	*8474A140
2	Clip and Dee	*144A105
3	Strap (includes hooks)	*8474A063
4	1/4-20 x 7/16" lg. Hex. Hd. Screw	*7000A323-07
5	Bracket, Pivot	*8474B012
6	#14, Type "A" Pan Hd. Screw	*7011A020-08
7	#10-32 x 7/16" lg., Mach. Screw	*7000A410-07
8	Bracket, Mounting (TR-70)	*8474A017
9	Lockwasher, External Tooth	*7075A060
10	Bracket, Mounting (TU-70)	*8474B007
11	Bolt, Hex. Head, 1/2-13 x 7/8 lg.	*7002A043-14
12	#14, Type "A" Self-Tapping Screw	*7011A084-16
13	Bar, Pivot	*8474A006
14	Link, Connector (used with all Control Center Modules and Mounts)	*8474A009
15	Bracket, Angle (MB-70)	*8474A021
16	Bracket, Microphone Mounting	*159A125
17	6-32 x 1/4" lg. Phillips Screw	*7000A406-04
18	Plug, Switch Insert (SWP*)	*8474A030
19	Housing Assembly (includes cover)	*8474B022
20	Plate, Switch Mounting	*8474B024
21	Bracket, Switch	*8474A027
22	Plate, Blank	*8474B054
23	Connector, Battery	*8474A098
24	Circuit Breaker, 100-ampere	*8474A136
25	Connector, Circuit Breaker	*8474A120
26	Solenoid	*8474A145
27	Bracket, Buss	*8474A093
28	Panel, Fuse and Terminal	*8474B109
29	Fuse, 2-Ampere, 3AG	*8474A118
30	Label, Fuse and Terminal Function	*8474A105
Not Shown	Lamp, Type 93 (CL-70)	*8107A076
	Link, Angle Connector (CL-70)	*8474A122
	Tag, Switch Function	*8474A038

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SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX
FEDERAL VASCAR®
ODOMETER MODULE

FEDERAL VASCAR® ODOMETER MODULE
Part No. 8469B429, 429-1, 371-1, 371-1

PPL 0097
PARTS LIST

AUGUST 1981

Item No.	Description	Part No.
1	Housing	8469A320
2	Gasket	8469A339
3	Terminal	8469A335
4	Rivet	7099A104-08
5	Lampholder	8469A341
6	Sleeve, Insulator	8469A357
7	Lamp	8469A336
8	Transistor, Photo	8469A740A
9	Holder, Diode	8469A334
10	Board, Mounting	8469A327
11	Plate, Solder	8469A348
12	Plate, Cover	8469A328
13	Lockwasher, Split, #6	* 7074A001
14	6-32 x 3/8 Screw, Fil. Hd.	* 7000A152-06
15	Grommet	8469A338
16	Grommet	8469A377
17	Cable	R306A007-03
18	Connector	8469A346
19	Washer, Wave Spring	7074A057
20	Shaft Assembly	8469A353
21	Bearing	8469A333
22	Ring, Retaining	8469A343
23	Wheel, Interrupter (6-slot-standard)	8469A325
24	Shaft	8469A324
25	Ring, Retaining	8469A340
26	Shaft Assembly	8469A355
27	Bushing, Adapter	8469A323
28	Shaft	8469A329
29	Wheel, Interrupter (8-slot-pre 71 Olds.)	8469A326
30	Plug, Snap (VASCAR I)	8469A488
31	Lead Wire (VASCAR I)	8469A100-10
32	Diode, Zener (VASCAR I)	8469A388
33	Tie Wrap (VASCAR I)	8469A042
34	Bracket (VASCAR I)	8469A061-2
35	Connector (VASCAR I)	8469A061-1
36	Board, Support (VASCAR I)	8469A386
37	Resistor (VASCAR I)	8469A387
Not Shown		
	Instruction Sheet, Installation	8469A613C
	Bushing, Adapter, 7/8-18 OD Female to Female 5/8-18 ID	8469A322-01
	* Indicates available from local source.	

TEE KIT ASSEMBLY
Part No. 8469A614

Description	Part No.
Sleeve, Ford	8469A215
Plug, Ford	8469A279
Bushing, Male 7/8 -- Female 7/8	8469A322
Core (used with part no. 8469A512)	8469A330
Plug, Plastic	8469A498
Adapter, Tee Drive no longer available order 8469A616	8469A512
Cable, Speedometer	8469A513
Core (used with part no. 8469A512	8469A516
Core (used with part no. 8469A611	8469A516-3
Adapter, Tee Drive	8469A616
Core (used with part no. 8469A611	8469A612
Screw, Set	7007A001-06

FEDERAL VASCAR I AND II FUSE KIT ASSEMBLY

Fuse Kit Assembly	8469A563

DO NOT ORDER PARTS BY ITEM NUMBER.
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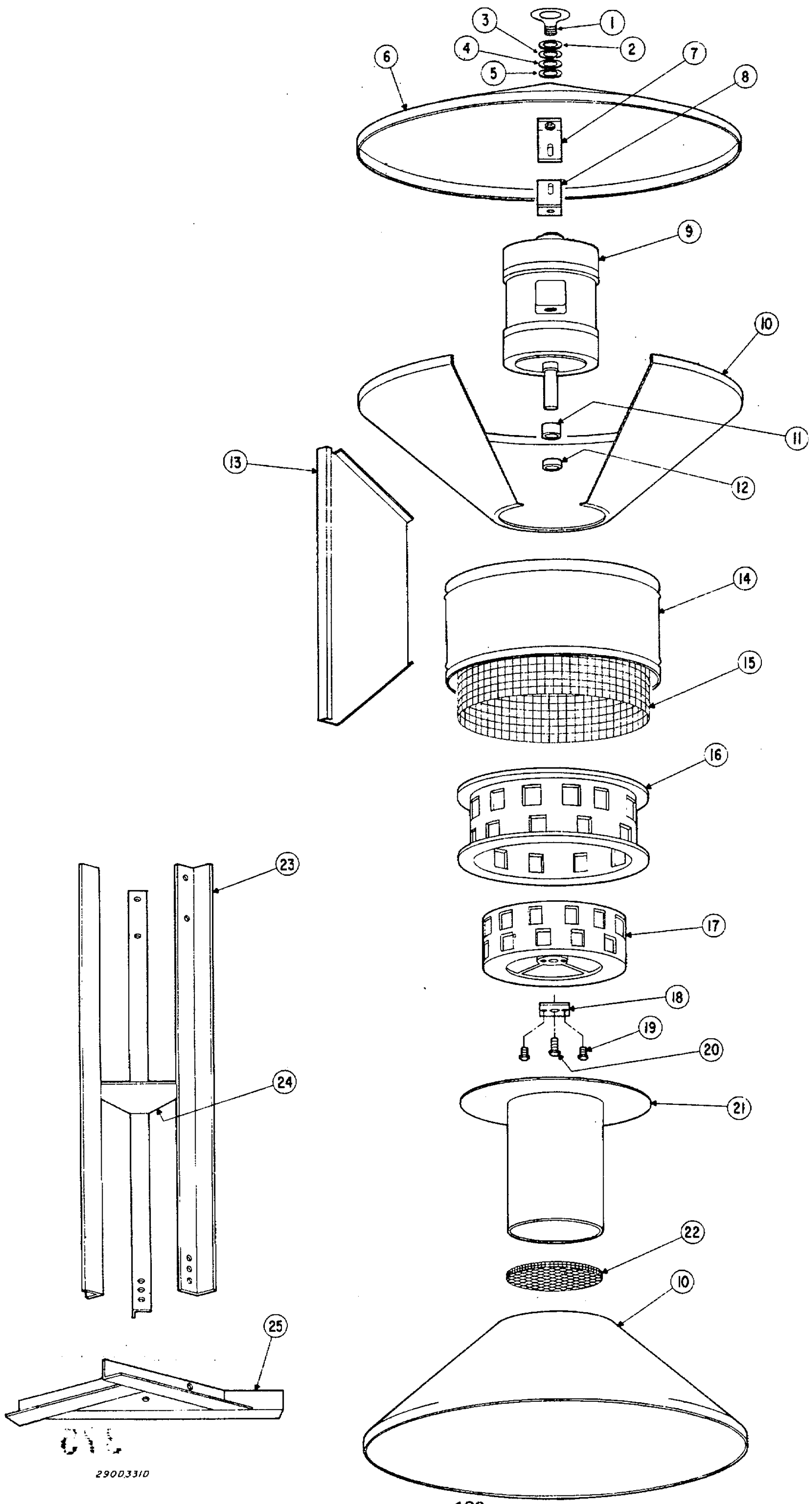
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OUTDOOR

SIRENS

SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX
MODELS SD10A
SD10B



Index No.	Description	Part No.	Qty.
1	1/2-13 Eyebolt	7003A003	1
2	1/2" Split Lockwasher	7074A025	1
3	1/2" Flat Steel Washer	7072A095	1
4	1/2 x 1-3/8 O.D. Steel Washer	7072A115	1
5	Rubber Washer	7072A038	1
6	Cover, Housing	8451C003	1
7	Hoisting Bracket, Top (Model SD10A ONLY)	8451A038	1
8	Hoisting Bracket, Bottom (Model SD10A ONLY)	8451A039	1
9	Motor (Model SD10A) *	8283B789	1 AR
	Motor (Model SD10B)	8287B179	
10	Projector	8451D004	2
11	Spacer (used with part no. 8283B789) *	8280A026-01	1 AR
12	Spacer, Motor (Model SD10A ONLY)	8179A029	3
13	Fin, Vertical	8451C006	4
14	Shield	8451C005	1
15	Screen, Stator	8451B011	1
16	Stator	8279D036	1
17	Rotor	8279D018	1
18	Plate, Locking	8279A026	1
19	Bolt, Locking	8279A033	2
20	Bolt, Locking	8279A034	1
21	Flange and Tube Assembly	8451B002A	1
22	Screen, Intake Tube	8451B010	1
23	Bracket, Angle	8450B015	3
24	Plate, Brace	8451C037	1
25	Angle, Roof	8450C017A	1
Not Shown	Roof Mounting Kit (includes item 22 and misc. hardware)	8540C017A-01	AR
	Pole Mounting Kit (includes items 18, 20, 21, and misc. hardware)	8450C014-01	AR
	Bracket, Hoisting (Model SD10B)	8287B183	1
	Brush (for single phase motors)	8283A342	1 set
	Spring, Brush (for single phase motors)	8283A343	4

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.

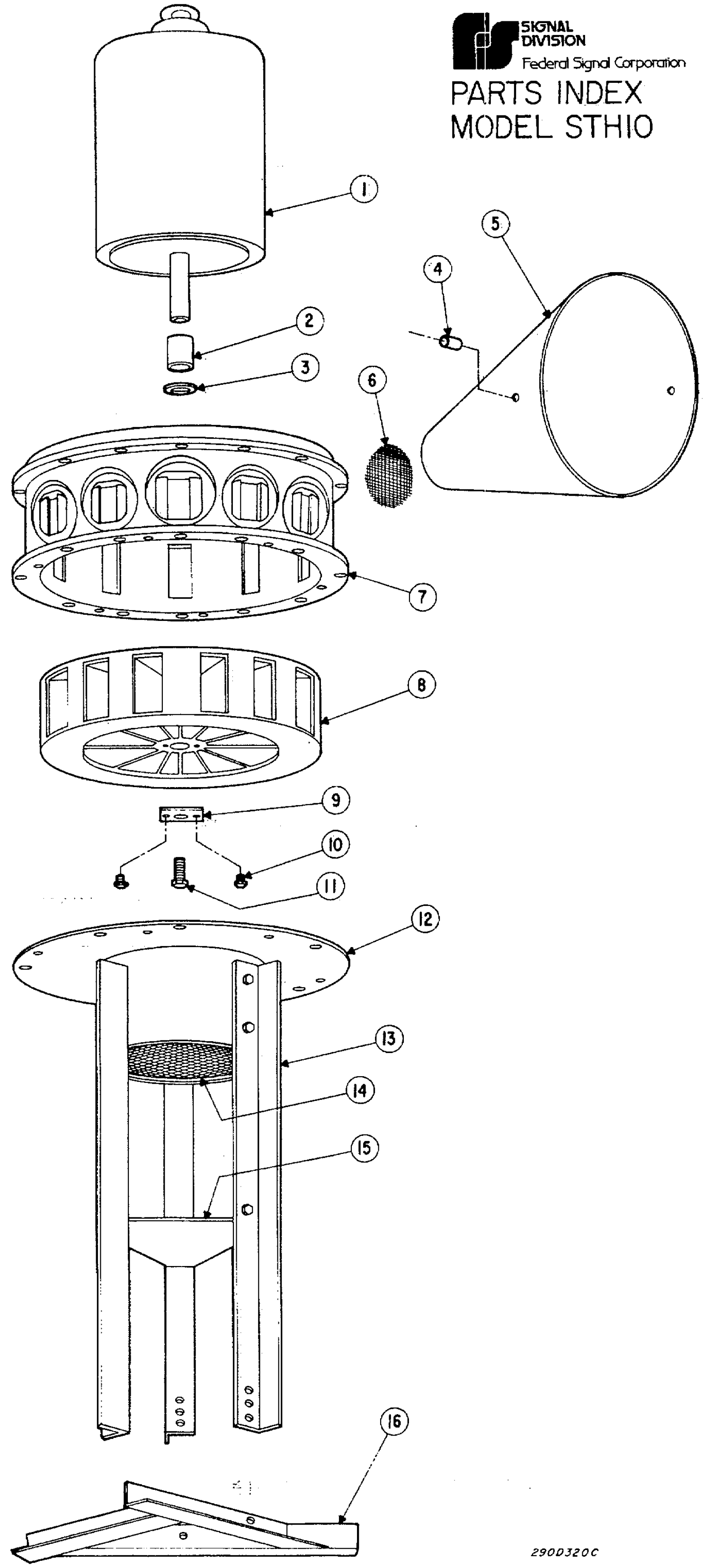
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SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX
MODEL STH10



Item No.	Description	Part No.	Qty.
1	Motor, $7\frac{1}{2}$ HP, 3 Phase	8283B789	1 AR
	Motor, $7\frac{1}{2}$ HP, 1 Phase	8287B179	
2	Spacer (for 3 phase motor only)	8280A026-01	1
3	Washer	7072A145A	1
4	Spacer	8454A007	12
5	Projector (Gray)	8454D002	12 AR
	Projector (CD Yellow)	8454D002-01	
6	Screen, Projector (Gray)	8454A011	12 AR
	Screen, Projector (CD Yellow)	8454A011-0Y	
7	Stator	8454D001	1
8	Rotor	8454D004	1
9	Plate, Locking	8279A026	1
10	Bolt, Locking	8279A033	2
11	Bolt, Locking	8279A034	1
12	Flange and Tube Assembly (Gray)	8450B011A	1 AR
	Flange and Tube Assembly (CD Yellow)	8450B011A-0Y	
13	Bracket, Angle (Gray)	8450B015	3 AR
	Bracket, Angle (CD Yellow)	8450B015-0Y	
14	Screen, Intake Tube (Gray)	8451B010	1 AR
	Screen, Intake Tube (CD Yellow)	8451B010-0Y	
15	Plate, Brace (Gray)	8451C037	1 AR
	Plate, Brace (CD Yellow)	8451C037-0Y	
16	Angle, Roof (Gray)	8450C017A	1 AR
	Angle, Roof (CD Yellow)	8450C017A-0Y	
Not Shown	Kit, Pole Mounting (Gray)	8450D010	1 AR
	Kit, Pole Mounting (CD Yellow)	8450D010-01	
	Kit, Roof Mounting (Gray)	8450C017A-01	1 AR
	Kit, Roof Mounting (CD Yellow)	8450C017A-01-0Y	
	Hoisting Bracket (1 Phase)	8287B183	1
	Brush, Motor (1 Phase)	8283A342	1 set
	Spring, Motor (1 Phase)	8283A343	4
	Projector Kit	8450A025	1
	Eyebolt	7003A003A	1

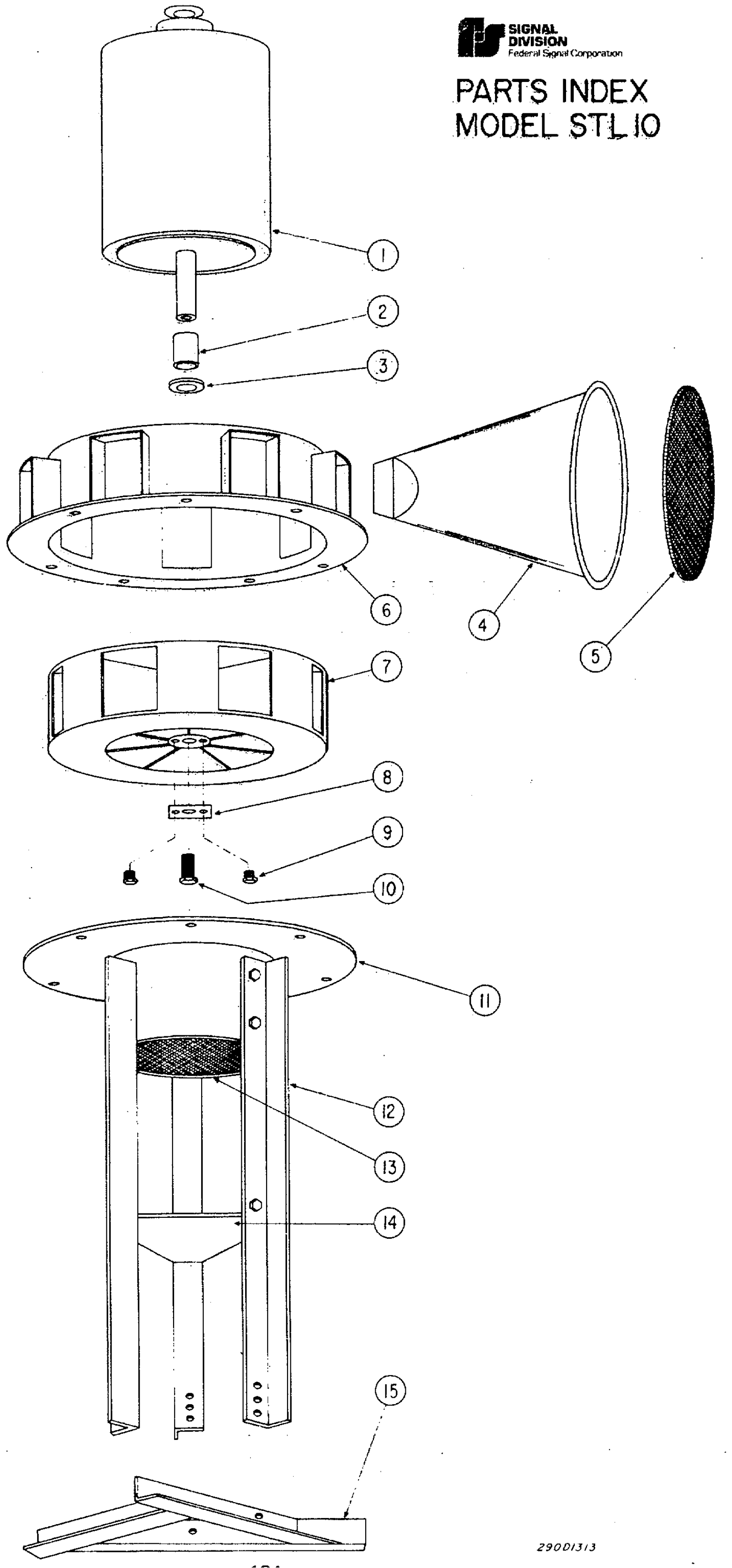
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PARTS INDEX
MODEL STL10



MODEL STL10 SIREN

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PARTS LIST

AUGUST 1981

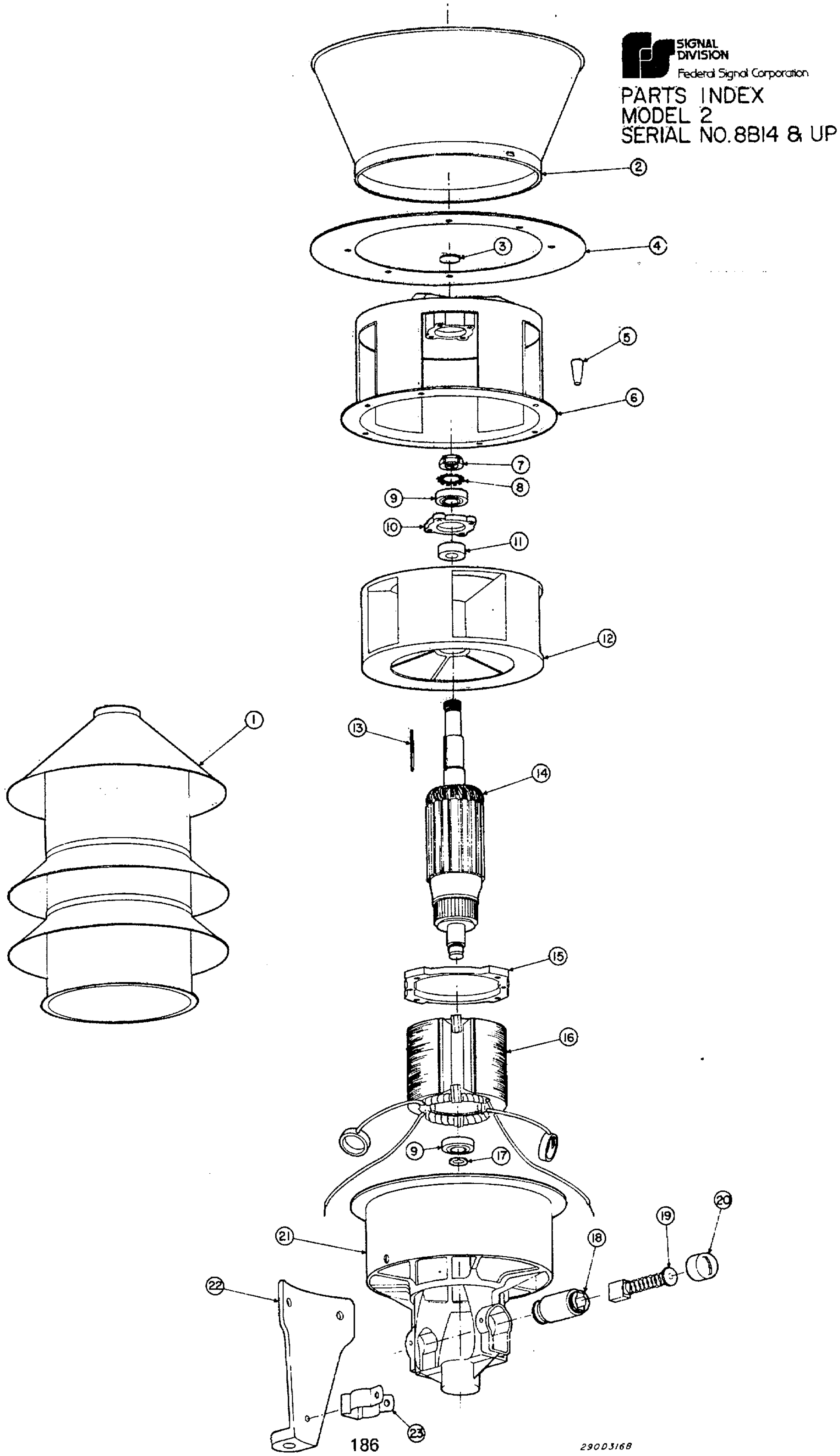
Item No.	Description	Part No.	Qty.
1	Motor, $7\frac{1}{2}$ HP , 3 Phase	8283B789	1 AR
	Motor, $7\frac{1}{2}$ HP , 1 Phase	8287B179	
2	Spacer (for 3 phase motor only)	8280A026-01	1
3	Washer	7072A145A	1
4	Projector	8450D007	7
5	Screen, Projector	8450B008	7
6	Stator	8450D002	1
7	Rotor	8450D001	1
8	Plate, Locking	8279A026	1
9	Bolt, Locking	8279A033	2
10	Bolt, Locking	8279A034	1
11	Flange and Tube Assembly	8450B033A	1
12	Bracket, Angle	8450B015	3
13	Screen, Intake Tube	8451B010	1
14	Plate, Brace	8451C037	1
15	Angle, Roof	8450C017A	1
Not Shown	Kit, Pole Mounting	8450D035A	1 AR
	Kit, Roof Mounting	8450C017A-01	
	Hoisting Bracket (1 Phase)	8287B183	1
	Brush, Motor (1 Phase)	8283A342	1 set
	Spring, Motor (1 Phase)	8283A343	4
	Projector Kit	8454A032	1
	Eyebolt	7003A003A	1

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SIGNAL
DIVISION
Federal Signal Corporation
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SERIAL NO. 8B14 & UP
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29003168

Index No.	Description	Part No.	Qty.
1	Housing Assembly, Galv. Steel	8155B086	1 AR
	Housing Assembly, Aluminum	8155B086-01	
2	Projector	8247C006	1
3	Plug	8283A120	1
4	Plate, Baffle	8247C007	1
5	Taper Pin, # 5 x 1	8400A229	2
6	End Bell, Stator	LO 1-02	1
7	Locknut	LO 1-15	1
8	Lockwasher	LO 1-16	1
9	Bearing	8239A045	2
10	Locking Ring, Top Bearing	LO 1-07	1
11	Rotor Spacer and Bearing Stop	LO 1-08	1
12	Rotor	LO 1-21	1
13	Key	8247A057	1
14	Armature, 120- Volt	8247B041G	1 AR
	Armature, 240- Volt	8247B039G	
15	Locking Ring, Field	LO 1-20	1
16	Field, 120- Volt	8247B042G	1 AR
	Field, 240- Volt	8247B040G	
17	Spring Lockwasher, Lower Bearing	LO 1-11	1
18	Holder, Brush	8247A021	2
19	Brush and Spring	8247A020	2
20	Cap, Brush Holder	8247A022	2
21	Housing, Motor	LO 1-03	1
22	Legs	LO 1-4A	3
23	Hanger, Cable	8400A211	1
Not Shown	End Bell, Stator (replaces item 6 on two-tone units)	8247D023	1
	Rotor (replaces item 12 on two-tone units)	8247D024	1

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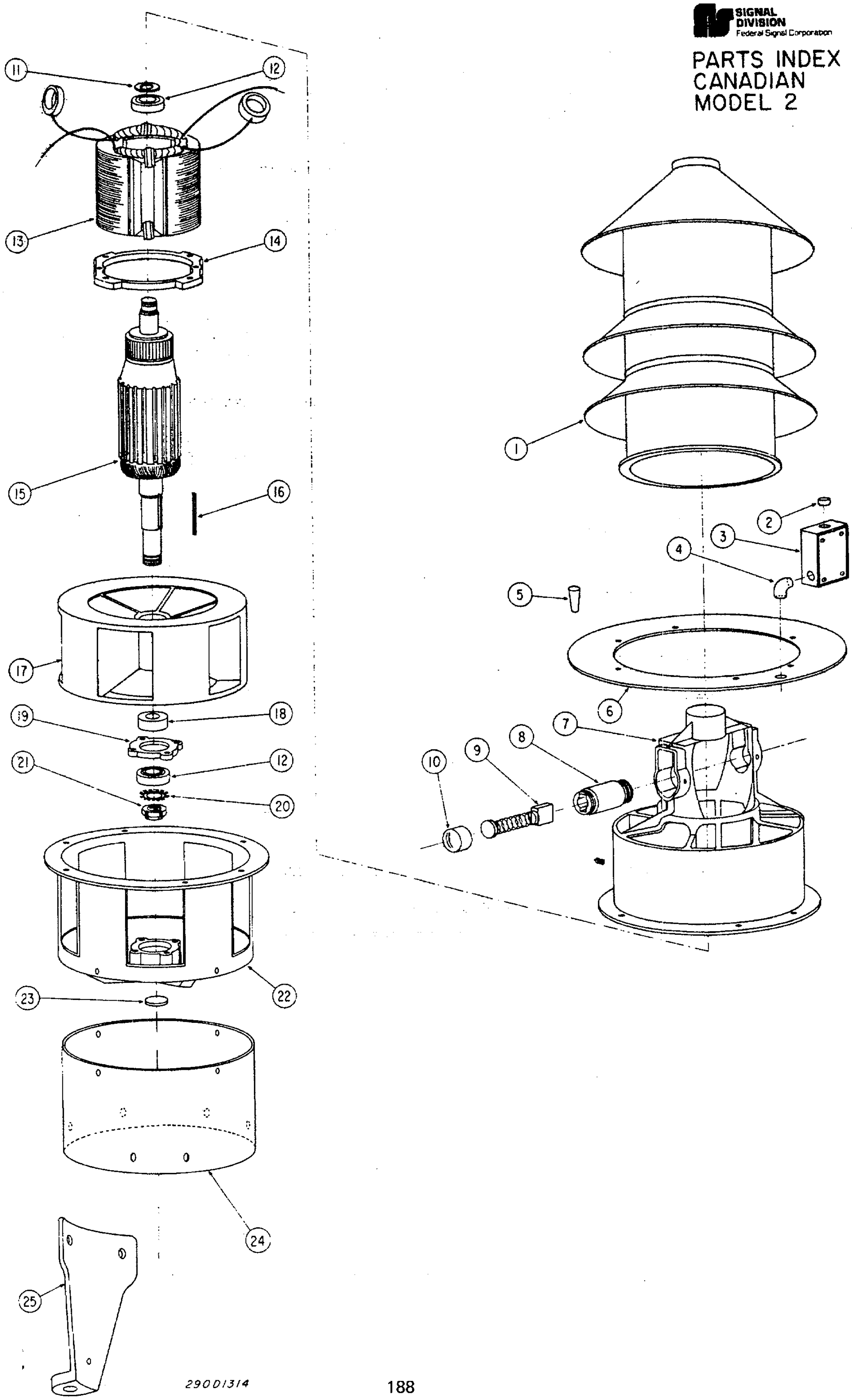
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SIGNAL DIVISION Federal Signal Corporation

PARTS INDEX CANADIAN MODEL 2



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PPL 0150 AUGUST 1981
PARTS LIST

Item No.	Description	Part No.	Qty.
1	Housing Assembly	8155B092	1
2	Bushing	8129A001	1
3	Junction Box, with Cover	8287B202	1
4	Elbow, 90°	8287A145	1
5	Taper Pin, # 5 x 1	8400A229	2
6	Plate, Baffle	8247C007-01	1
7	Housing, Motor	LO 1-03	1
8	Holder, Brush	8247A021	2
9	Brush and Spring	8247A020	2
10	Cap, Brush Holder	8247A022	2
11	Lockwasher, Spring	LO 1-11	1
12	Bearing	8239A045	2
13	Field (120V)	8247B042G	1 AR
	Field (240V)	8247B040G	
14	Ring, Locking Field	LO 1-20	1
15	Armature (120V)	8247B041G	1 AR
	Armature (240V)	8247B039G	
16	Key	8247A057	1
17	Rotor	LO 1-21	1
18	Rotor Spacer, and Bearing Stop	LO 1-08	1
19	Ring, Locking	LO 1-07	1
20	Lockwasher	LO 1-16	1
21	Locknut	LO 1-15	1
22	End Bell, Stator	LO 1-02	1
23	Plug	8283A120	1
24	Adapter, Mounting	8155C059	1
25	Legs	LO 1-4A	3

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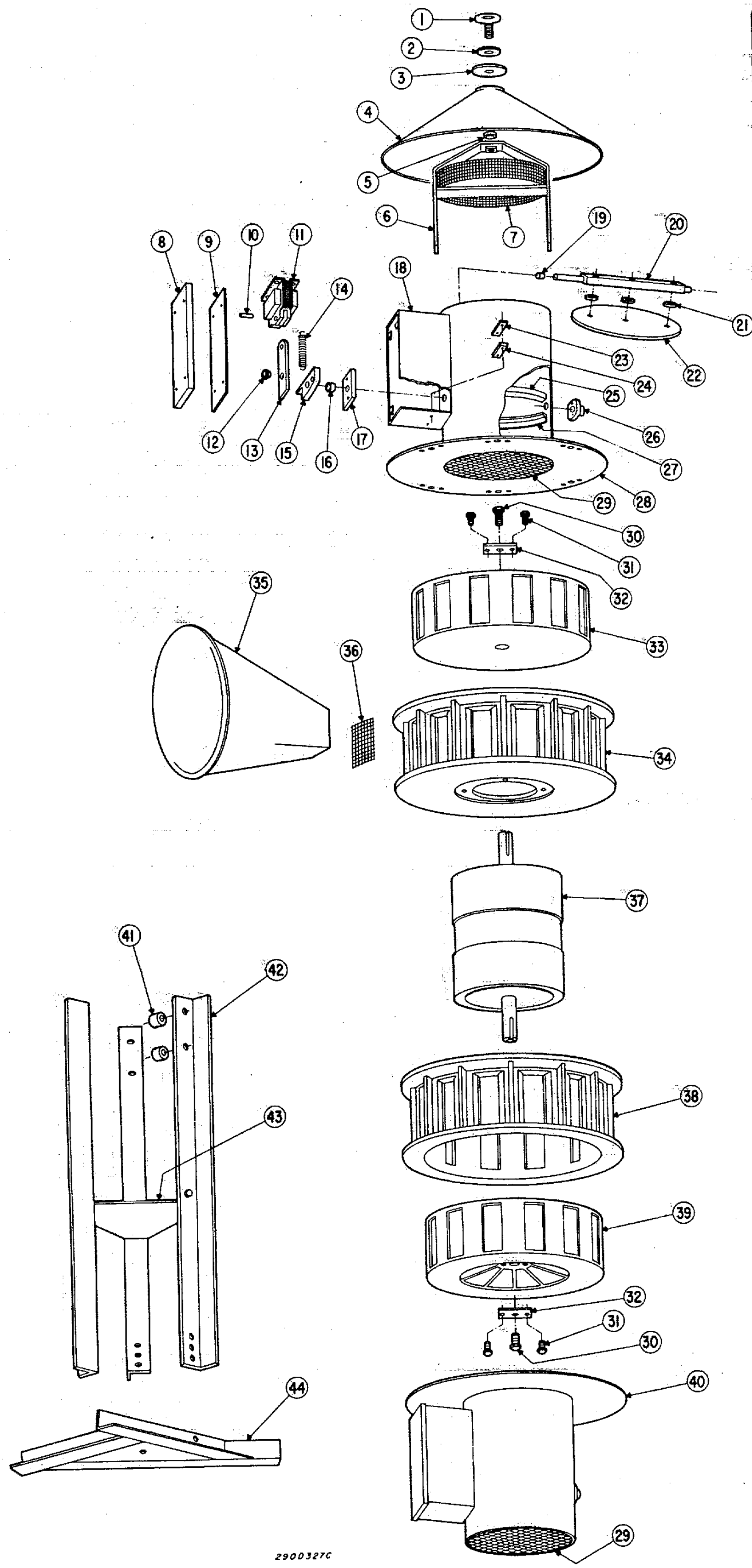
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SIGNAL DIVISION

PARTS INDEX
MODELS
2T22A & B
3T22A & B



Index No.	Description	Part No.	Qty.
1	Eye Bolt, 1/2-13	7003A003A	1
2	Washer, Rubber	7072A038	1
3	Washer	7072A147A	1
4	Dome, Steel	8155B013-01-0Y	1
5	Spacer	8445A041	1
6	Bracket, Hoisting	8445C008	1
7	Screen, Top Intake	8445B047	1
8	Cover (Model 3T22)	8445C007	1
9	Gasket (Model 3T22)	8445B025	1
10	Pin, Roll (Model 3T22)	7091A014A	1
11	Solenoid (Model 3T22)	8445A036	1
12	Bearing, Link (Model 3T22)	8445A028	1
13	Link (Model 3T22)	8445A033	1
14	Spring (Model 3T22)	8445A034	1
15	Crank (Model 3T22)	8445B019	1
16	Spacer (Model 3T22)	8445A071	1
17	Bearing (Model 3T22)	8445A030	1
18	Box, Solenoid (Model 3T22)	8445D005	1
19	Spacer (Model 3T22)	8445A070	1
20	Shaft (Model 3T22)	8445B068	1
21	Washer (Model 3T22)	7072A148A	3
22	Plate, Damper (Model 3T22)	8445C009	1
23	Pad, Stop (Model 3T22)	8445A044	1
24	Stop, Rubber Bumper (Model 3T22)	8445A031	1
25	Stop Ring, Upper (Model 3T22)	8445B020	1
26	Bearing (Model 3T22)	8445B024	1
27	Stop Ring, Lower (Model 3T22)	8445B018	1
28	Intake Tube, Upper (Model 2T22)	8445C057	1 AR
	Intake Tube, Upper (Model 3T22)	8445C022	
29	Screen	8445C035	2
30	Bolt, Locking	8279A034	2
31	Bolt, Locking	8279A033	4
32	Plate, Locking	8279A026	2
33	Rotor, 12-Port	L131-01	1
34	Stator, 12-Port	8283D417	1
35	Projector	8445D006	22
36	Screen	8445A040	22
37	Motor (Models 2T22A and 3T22A)	8445B086	1 AR
	Motor (Models 2T22B and 3T22B)	8287B178	
38	Stator, 10-Port	8446D003	1
39	Rotor, 10-Port	8446D002	1
40	Intake Tube, Lower (Model 2T22)	8445C056	1 AR
	Intake Tube, Lower (Model 3T22)	8445C017	
41	Spacer	8445A041	6
42	Bracket, Angle	8450B015	3
43	Plate, Brace	8451C037	1
44	Angle, Roof	8450C017A	1
Not Shown	Roof Mounting Kit (includes item 44 and miscellaneous hardware)	8450C017A-01	AR
	Pole Mounting Kit (includes items 41, 42, 43, and miscellaneous hardware)	8450C014-01	AR
	Upper Intake Tube Code Mechanism Assy. (3T22)(includes items 8 thru 28 and miscellaneous hardware)	8445D073	1 AR
	Lower Intake Tube Code Mechanism Assy. (3T22)(includes items 8 thru 27, and 40 with miscellaneous hardware)	8445D072	1 AR
	Brush (for single phase motors)	8283A342	1 set
	Spring (for single phase motors)	8283A343	4

DO NOT ORDER PARTS BY INDEX NUMBER.
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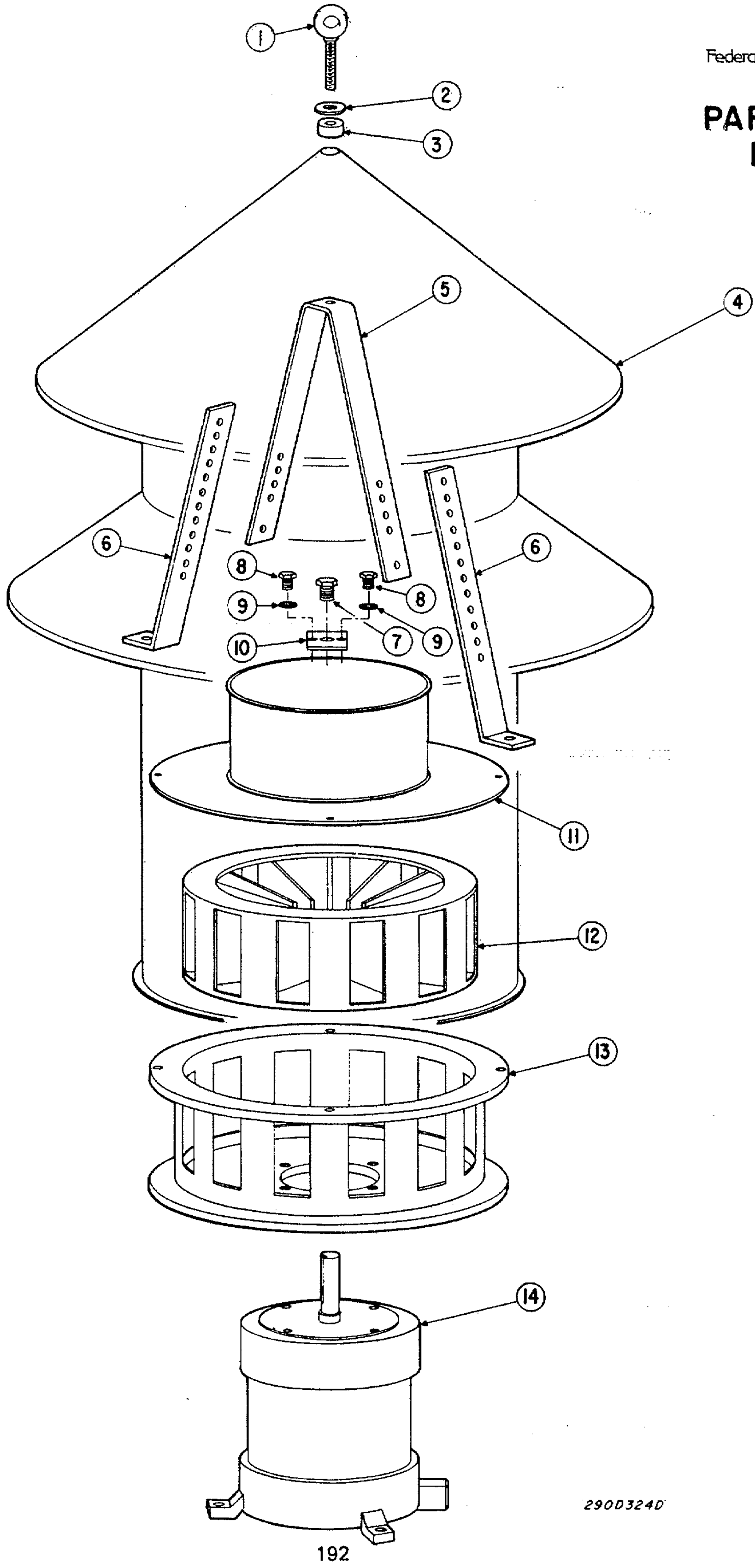
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Signal Division
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SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX
MODELS
5A
5AT
5B
5BT



192

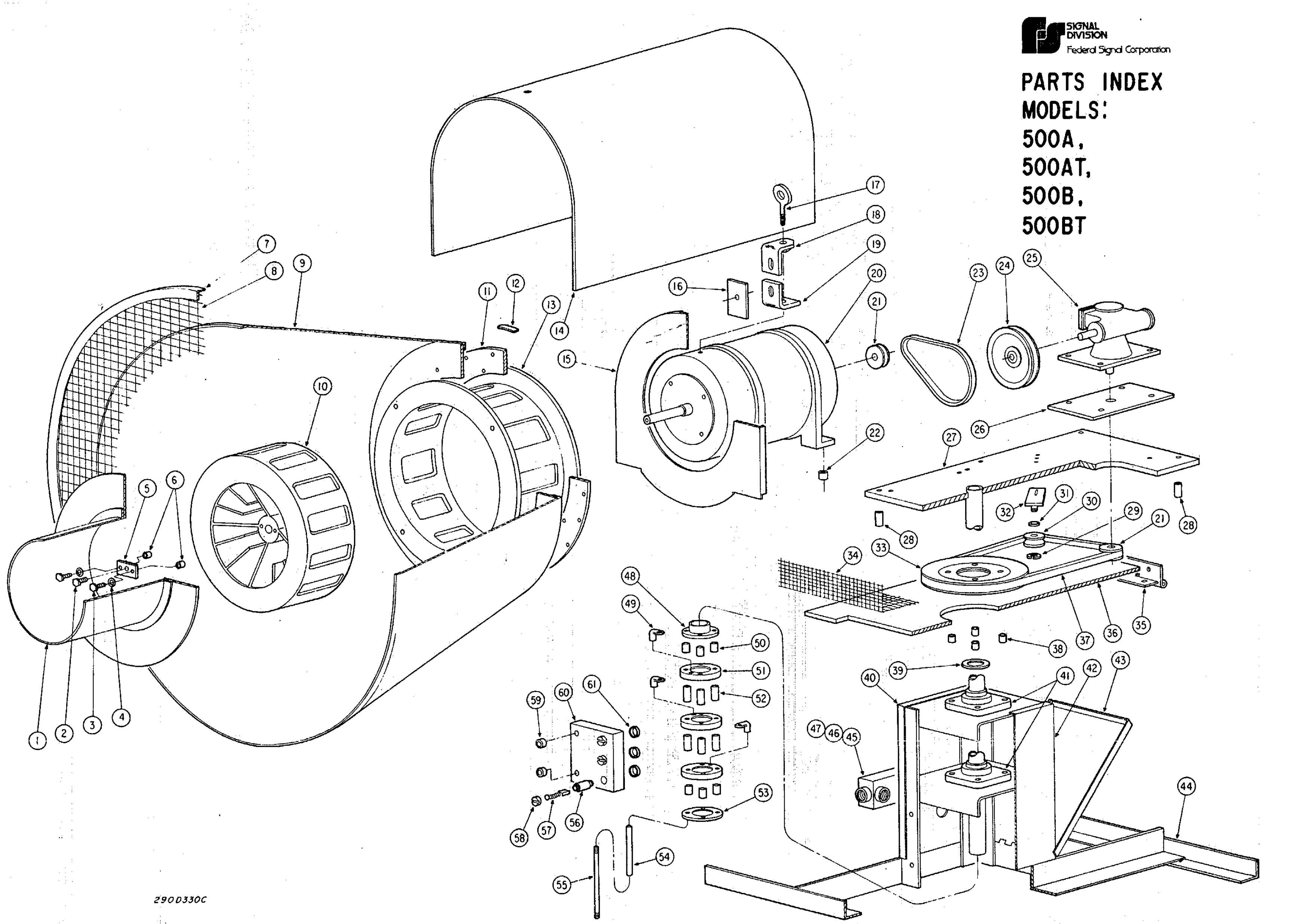
Index No.	Description	Part No.	Qty.
1	Eyebolt	7003A003A	1
2	Flat Washer, 5/8 Steel	7072A041	1
3	Washer, Rubber Mount	8287A161	1
4	Housing Assembly	8155B087	1
5	Bracket Top, Hoisting	8155C077	1
6	Bracket Sides, Hoisting	8155B078	2
7	Bolt, Locking, 1/2-13	8279A034	1
8	Bolt, Locking, 5/16-18	8279A033	2
9	Lockwasher, Split	7074A021	2
10	Plate, Locking	8279A026	1
11	Projector, Intake		
	(Model 5A and 5B single tone units only)	8147C009	1 AR
12	Rotor		
	(Model 5A and 5B single tone units only)	L 127-01	1 AR
	Rotor		
	(Model 5AT and 5BT two tone units only)	8279D018	
13	Stator		
	(Model 5A and 5B single tone units only)	8283D180	1 AR
	Stator		
	(Model 5AT and 5BT two tone units only)	8279D036	
14	Motor, 3 Phase		
	(Model 5A and 5AT)	8283B791	1 AR
	Motor, 3 Phase		
	(Model 5A, 550/600 Volts)	8283B791-01	
	Motor, 1 Phase		
	(Model 5B and 5BT)	8287B177	
Not Shown	Brush (for single phase motors)	8283A342	1 set
	Spring (for single phase motors)	8283A343	4
	Stainless Steel Wire	RC 15-02-01	AR

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SIGNAL DIVISION
Federal Signal Corporation
PARTS INDEX
MODELS:
500A,
500AT,
500B,
500BT
290D330C

MODEL 500 SIRENS
500A, 500AT, 500B, 500BT

AUGUST 1981

Item No.	Description	Part No.	Qty.
1	Intake Tube Assembly	8448C046	1
2	Bolt, Locking	8279A034	1
3	Bolt, Locking (Model 500A & B)	8279A038	2 AR
	Bolt, Locking (Model 500AT & BT)	8279A033	
4	Lockwasher, Split	7074A021	2
5	Plate, Locking	8279A026	1
6	Spacer (Model 500A & B only)	8448A055	2
7	Ring	8448A020	1
8	Screen, Projector	8448A023	1
9	Projector Assembly	8448A035	1
10	Rotor (Model 500A & B)	L127-05-01	1 AR
	Rotor (Model 500AT & BT)	8279D018	
11	Ring, Split Mounting	8448B047	1
12	Pad, Support	8283A350-01	1
13	Stator (Model 500A & B)	8448D050	1 AR
	Stator (Model 500AT & BT)	8448D049	
14	Housing, Motor (Model 500A & AT)	8448C014.	1 AR
	Housing, Motor (Model 500B & BT)	8448D056	
15	Housing Mounting Plate Assembly	8448A051	1
16	Shim, Hoisting Bracket (Model 500A & B only)	8448A054	1
17	Top Bracket, Hoisting	8451A038C	1
18	Bottom Bracket, Hoisting	8451A039A	1
19	Eyebolt	7003A003A	1
20	Motor (Model 500A & AT)	8287B181	1 AR
	Motor (Model 500B & BT)	8287C157	
21	Pulley, 2 inch P.D.	8452A075	2
22	Spacer	L 01-08	4
23	Belt, Upper	8448A028	1
24	Pulley, 6 inch P.D.	8452A074	1
25	Gear Reducer	8400A068	1
26	Plate, Base	8452B062	1
27	Mounting Plate Assembly	8448C003	1
28	Spacer	8448A016	5
29	Ring , Retaining	8440A110	1
30	Pulley, Idler	8448A011	1
31	Washer, Idler	7072A146	1
32	Idler Plate Assembly	8448A006	1
33	Pulley	8448A062	1
34	Screen (Model 500B & BT only)	8448B057	1
35	Hinge, Motor Housing	8448B017	1

Item No.	Description	Part No.	Qty.
36	Mounting Plate, Housing	8448B015	1
37	Belt, Lower	8448A029	1
38	Spacer	8452A067	4
39	Washer, Bearing	8452A071	1
40	Panel, Permanent	8452B042-01	1
41	Bearing	8452A076	2
42	Panel, Permanent	8452B042	1
43	Panel, Removable	8448B039	2
44	Frame, Angle	8452D039-01	1
45	Gasket, Unilet	8452A079	1
46	Cover, Unilet	8452A078	1
47	Body, Unilet	8452A077	1
48	Flange	8452A070	1
49	Terminal	S50A	AR
50	Spacer, Slip Ring	8542A046	8
51	Ring, Slip	8452A044	3
52	Spacer, Slip Ring (Model 500A & AT)	8452A047	8
	Spacer, Slip Ring (Model 500B & BT)	8448A042	12
53	Base, Terminal	8448A005	1
54	Tube, Insulator (Model 500A & AT)	8452A049	4 AR
	Tube, Insulator (Model 500B & BT)	8448A040	
55	Bolt, Slip Ring	8542A050	4
56	Holder, Brush	8247A021	6
57	Brush and Spring	8247A020	6
58	Cap, Brush	8247A022	6
59	Spacer	8448A022	4
60	Plate, Brush Holder (Model 500A & AT)	8448B021	2 AR
	Plate, Brush Holder (Model 500B & BT)	8448B043	
61	Ring, Brush	8283A117	AR
Not Shown			
	Wire, Stainless Steel	RC 15-02-01	AR

DO NOT ORDER PARTS BY ITEM NUMBER.
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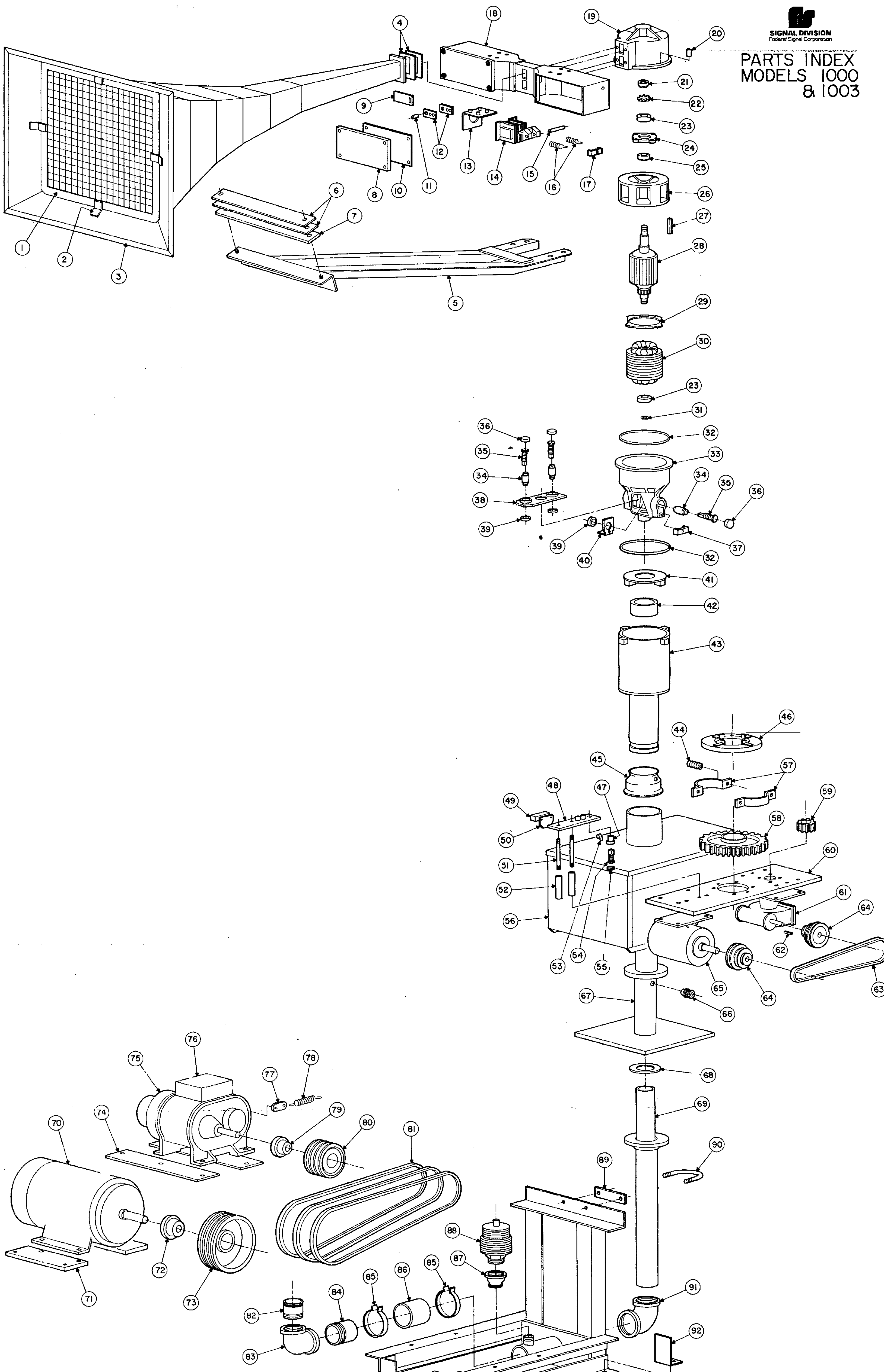
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SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX MODELS 1000 & 1003



Index No.	Description	Part No.	Qty.
1	Screen	8400A083	1
2	Bracket	8400A111	4
3	Horn Assy.	8400D022	1
4	Gasket	8400A054	2
5	Horn Support Assy.	8400B026	1
6*	Plate, Filler	8400B078-01	2
7*	Plate, Filler	8400B078-02	1
8*	Cover	8300A019	2
9*	Slide, Valve	8300A024	2
10*	Gasket	8300B018	2
11*	Pin, Roll	7091A011	2
12*	Link, Solenoid	8300A027	4
13*	Solenoid Mounting Bracket Assy.	8300A052	2
14*	Solenoid	8300A054	2
15*	Shaft	8300A053	2
16*	Spring	8300A049	4
17*	Bracket	8300A050	2
18*	Solenoid Housing Assy.	8300D003	1
19	Stator	8400D001	1
20	Pin, Taper	8400A229	5
21	Nut, Lock	LO1-15	1
22	Washer, Lock	LO1-16	1
23	Bearing, Ball	8239A045	2
24	Ring, Locking	LO1-07	1
25	Spacer, Rotor	LO1-08	1
26	Rotor (single tone)	LO1-21	1AR
	Rotor (dual tone)	8400D165	
27	Key	8247A057	1
28	Armature	8247B039G	1
29	Ring, Field Locking	LO1-20	1
30	Field	8247B040G	1
31	Ring, Spring Locking	LO1-11	1
32	Gasket,"O" Ring	8400A230	2
33	Housing, Motor	8400D115	1
34	Holder, Brush	8247A021	4
35	Brush and Spring	8247A020	4
36	Cap, Brush	8247A022	4
37	Clamp	8400A109	2
38	Brush Bracket Assy.	8400A019	1
39	Ring, Clamp	8283A117	4
40	Bracket, Reinforcing	8400A108	2
41	Collector, Ring Assy.	8400B056	1

*Indicates used on Model 1003 only.

Index No.	Description	Part No.	Qty.
42	Bearing, Sleeve	8400A017	1
43	Chopper Housing Assy. (Model 1000)	8400D020	1AR
	Chopper Housing Assy. (Model 1003)	8300D007	
44	Spring	8283A886	1
45	Seal, Rotator (Model 1000)	8400B041	1AR
	Seal, Rotator (Model 1003)	8300C011	
46*	Slip Ring Assy.	8300C012	1
47*	Holder, Brush	8442A025	3
48*	Bar, Brush Holder	8300B020	1
49*	Block, Terminal	8442A033	1
50*	Strip, Marker	8300A039	1
51*	Stud	8300A035	2
52*	Spacer	8300A031	2
53*	Terminal, Brush Holder	8442A027	3
54*	Brush	8442A028	3
55*	Cap, Brush Holder	8442A026	3
56	Housing, Rotator (Model 1000)	8400D044-01	1AR
	Housing, Rotator (Model 1003)	8300D005	
57	Drive Band Assy.	8400B055	2
58	Gear, Spur	8400C008	1
59	Pinion	8400A018	1
60	Plate, Motor Base	8400B031	1
61	Reducer, Gear	8400A068	1
62	Key (Gear Reducer)	8400A363A	1
63	Belt, V	8400A252	1
64	Pulley , V	8400A077-01	2
65	Motor, single phase	8283A852	1AR
	Motor, 3- phase	8283A853	
66	Connector	8400A234	1
67	Chopper Tube Assembly	8400D021	1
68	Gasket	8400A233	1
69	Standpipe Assembly	8400B076-01	1
70	Motor, single phase 7-1/2 H.P. (Models 1000B, BT, and 1003B)	8287B184	1AR
	Motor, 3-phase 10 H.P. (Models 1000A, AT, and 1003A	8400B286	
71	Adapter Plate	8400B287	2
72	Hub, 1-3/8 Bore (both A & B Models)	8400A256	1AR
	Hub, 1-1/8 Bore (old Model B ONLY)	8400A340	
73	Sheave (all present models)	8400B190	1AR
	Sheave (old B Models ONLY)	8400B219	
74	Plate , Adapter	8400C155	2
75	Blower	8400A194	1
76	Strainer , Blower Intake	8400C265	1
77	Clip, Spring	8300A038	1
78	Spring	8445A034	1

Index No.	Description	Part No.	Qty.
79	Hub, 7/8 Bore (all present models)	8400A213	1 AR
	Hub, 7/8 Bore (old B Modles ONLY)	8400A348A	
80	Sheave (all present models)	8400B191	1AR
	Sheave (old B Models ONLY)	8400B190	
81	Belt, V	8400A189	1 set
82	Nipple, 2-1/2" Pipe	8400A192	1
83	Elbow, Pipe Reducing	8400A193	1
84	Nipple, 3" Pipe	8400A047	1
85	Clamp, Hose	8400A195	2
86	Hose	8400A048	1
87	Coupling, Reducing 2" to 1-1/2"	8400A218	1
88	Valve, Relief	8400A217	1
89	Shim	8400A073	AR
90	Bolt, U (includes nuts)	7003A005	1
91	Elbow, 3" Pipe	8400B057	1
92	Angle, Sheet Metal	8400B258	2
93	Blower Base Assembly	8400D036	1
Not	Blower Assembly (3 phase)	8400D196	1 AR
Shown	Blower Assembly (1 phase)	8400D196-01	
	Blower Housing	8400D040	1
	Grease Cup For Rotator	8400A231	2
	Projector Screen Assembly (includes items 1 and 2)	8400A239	1
	Chopper Assembly (includes items 19 - 40)		1 AR
	Model 1000, single tone	8400D071	
	Model 1000, dual tone	8400D071-01	
	Model 1003	8400D071-01	
	Rotator , Model 1000 (includes items 41-45, and 56-68)	8400D070-01	1AR
	Rotator, Model 1003	8300D002-01	
	Code Mechanism Assembly Model 1003 (includes items 8-18)	8300D001	1

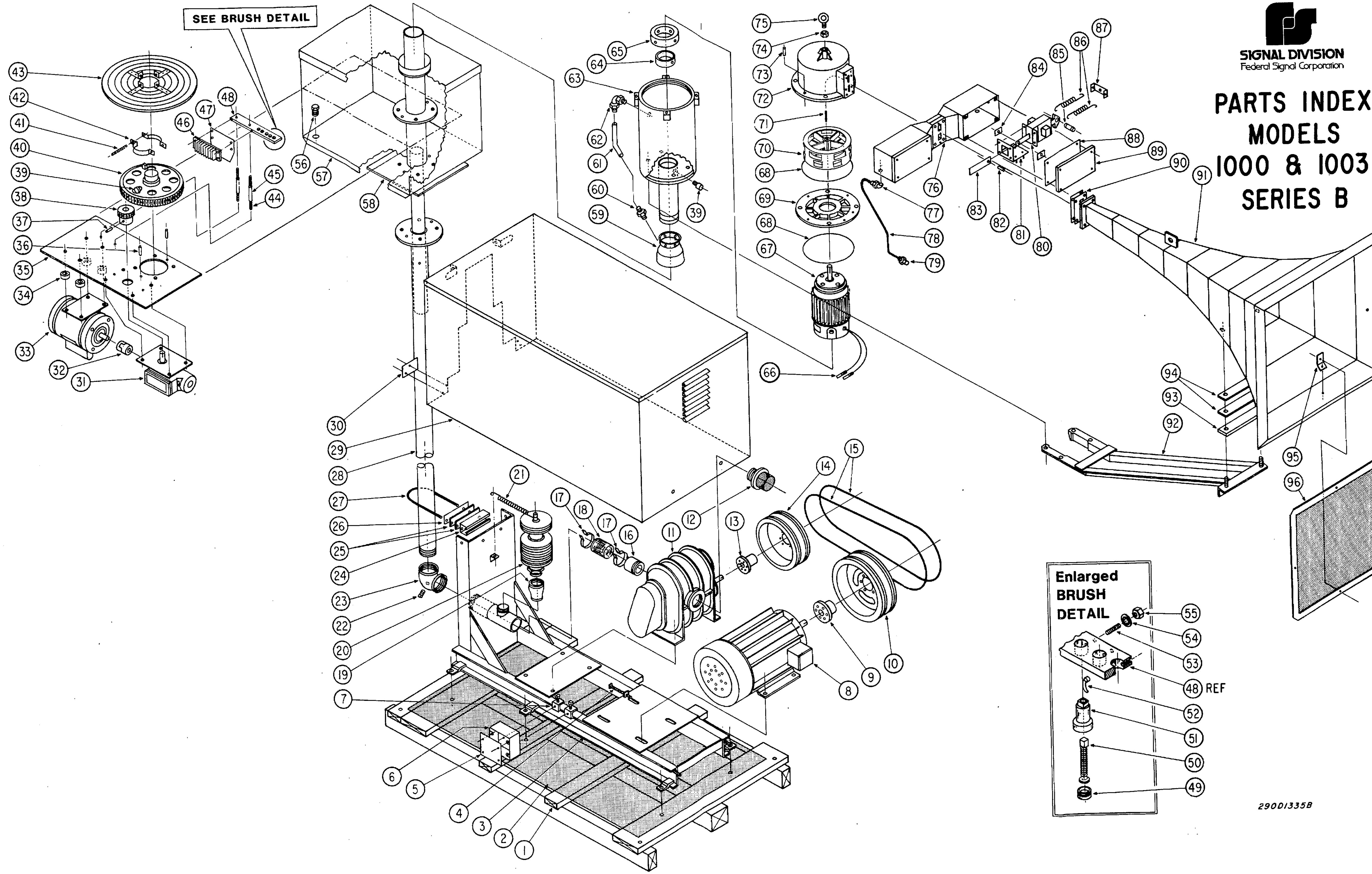
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SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX MODELS 1000 & 1003 SERIES B

MODELS : 1000 AND 1003 SERIES "B" THUNDERBOLT

Item No.	Description	Part No.	1000 A	1000 B	1003 A	1003 B
1/30	Blower Assembly	8400D434	1	1	1	1
1	Skid, Blower Base	8400B254-01	1	1	1	1
2	Screen	8400B253	1	1	1	1
3	Base Assembly, Blower	8400C402	1	1	1	1
4	Screw, Set Sq. Hd.					
	1/2-13 x 4-1/2	7008A009-72	1	1	1	1
5	Cover, Outlet Box	8400A241	1	1	1	1
6	Box, Outlet	8400A202	1	1	1	1
7	Clamp, Beam	8400A411	2	2	2	2
8	Motor, Blower					
	10 Hp., 3 Ph. (shown)	8400B286	1	0	1	0
	7-1/2 Hp., 1 Ph.	8287B184	0	1	0	1
9	Hub, QD # SDS 1-3/8 Bore	8400A366	1	1	1	1
10	Sheave QD 2/3 8.0	8400B389	1	1	1	1
11	Blower	8400B391	1	1	1	1
12	Strainer, Blower	8400A452	1	1	1	1
13	Hub, QD # SH 7/8 Bore	8400A372	1	1	1	1
14	Sheave, QD 2/3V 5.0	8400B388	1	1	1	1
15	Belt, V	8400A377	2	2	2	2
16	Nipple, Pipe 2-1/2"	8400B373	1	1	1	1
17	Clamp, Hose	8400A369	2	2	2	2
18	Hose, Cotton Polyester	8400A367	1	1	1	1
19	Reducer, Pipe	8400A218	1	1	1	1
20	Valve, Relief	8400A217	1	1	1	1
	Weights 2.562 ID	8400A217	5	5	5	5
	Weights 0.500 ID	8400A217-01	12	12	12	12
21	Spring	8300A049	1	1	1	1
22	Plug, Pipe	8400A203	1	1	1	1
23	Elbow, Reducing	8400A371	1	1	1	1
24	Spacer, Standpipe	8400A412	1	1	1	1
25	Shim, 3/16" thk. (2 shown)	8400A073-01	AR	AR	AR	AR
26	Shim, 1/8" thk. (1 shown)	8400A073	AR	AR	AR	AR
27	Bolt, U	8400A375	1	1	1	1
28	Standpipe Assembly	8400B076-03	1	1	1	1
29	Housing Assembly, Blower	8400D410	1	1	1	1
30	Cover, Blower Base Channel	8400A374	2	2	2	2
31/65	Rotator Assembly 1000	8400D437	1	1	0	0
	Rotator Assembly 1003	8400D437-01	0	0	1	1
31	Coupling, Direct Drive	8400A401	1	1	1	1
32	Reducer, Gear	8400A068	1	1	1	1
33 **	Motor, 1/3 Hp., 115/230VAC	8283A852	1	1	1	1
34	Spacer, Motor	8400A050	4	4	4	4
35	Plate, Rotor Base	8400C395	1	1	1	1
36	Pin, Roll	8400A280	2	2	2	2
37	Pin, Roll 3/16 x 1-1/4	7091A008	1	1	1	1
38	Gear, Pinion	8400A018	1	1	1	1
39	Cup, Grease	8400C419	2	2	2	2
40	Gear, Spur	8400C008	1	1	1	1
41	Spring	8283A886	1	1	1	1
42	Drive Band Assembly	8400B055	2	2	2	2
43	Collector Ring Assembly 1000	8400C439	1	1	0	0
	Collector Ring Assembly 1003	8400C440	0	0	1	1
44	Stud, 1/4-20 x 5-1/2	7009A007-88	2	2	2	2
45	Spacer, .493 ID x 3.53 Lg.	8400A384	2	2	2	2
46	Block, Terminal, 5 Pos.	8400A382	1	1	0	0
	Block, Terminal, 8 Pos.	8400A382-01	0	0	1	1
47	Strip, T.B. Marking, 5	8400A381	1	1	0	0
	Strip, T.B. Marking, 8	8400A385	0	0	1	1
48	Bar, Brush Holder, 2	8400B380	1	1	0	0
	Bar, Brush Holder, 5	8400B390	0	0	1	1
49	Cap, Brush Holder	8442A026	2	2	5	5
50	Brush	8442A028	2	2	5	5
51	Holder, Brush	8442A025	2	2	5	5
52	Clip, Brush	8442A027	2	2	5	5

Item No.	Description	Part No.	1000 A	1000 B	1003 A	1003 B
53	Screw, Set, 10-32 x 3/4	7008A002-12	2	2	5	5
54	Lockwasher, Int. Tth.	7075A014	2	2	5	5
55	10-32 Nut, Hex Brass	7059A015	2	2	5	5
56	Connector, CG 3750	8400A234	1	1	1	1
57	Rotator Housing Assembly	8400D428	1	1	1	1
58	Chopper Tube Assembly	8400D429	1	1	1	1
59	Seal, Rotator 1000	8400C430	1	1	0	0
	Seal, Rotator 1003	8400C430-01	0	0	1	1
60	Connector, Conduit 3/8	8400A418	1	1	1	1
61	Conduit, Flex. 3/8	8400A417	1	1	1	1
62	Connector, Conduit 3/8, 90°	8400A419	1	1	1	1
63	Chopper Housing Assembly	8400D431	1	1	1	1
64	Bearing, Chopper Sleeve	8400A017	1	1	1	1
65	Ring, Locking Chopper Tube	8400A416	1	1	1	1
66/75	Chopper Assembly					
	Single Tone	8400C438	1	0	1	0
	Dual Tone	8400C438-01	0	1	0	1
66	Connector, Chopper Motor	8400A421	2	2	2	2
67 ***	Motor, Chopper	8400A378	1	1	1	1
68	O - Ring, 8" ID	8400A230	2	2	2	2
69	Ring, Motor Mounting	8400D413	1	1	1	1
70	Rotor, Single Tone	8400C435	1	0	1	0
	Rotor, Dual Tone (shown)	8400D436	0	1	0	1
71	Key, .125 Sq. x 2" Lg.	8247A057	1	1	1	1
72	Stator, Single Port	8400D420	1	1	1	1
73	Pin, Taper	8400A229	5	5	5	5
74	1/2-13 Nut, Hex	7057A037	1	1	1	1
75	1/2-13 Eyebolt	7003A007	1	1	1	1
76/89	Code Mechanism Assembly	8300D140	0	0	1	1
76	Solenoid Housing Assembly	8300D138	0	0	1	1
77	Connector, 90° Elbow	8287A145	0	0	2	2
78	Conduit, Thinwall 3/4"	R007-03-01	0	0	AR	AR
79	Connector, Thinwall 3/4	8287A199	0	0	2	2
80	Solenoid	8300A054	0	0	2	2
81	Bracket Assembly, Solenoid Mounting	8300A052	0	0	2	2
82	Pin, Roll	7091A011	0	0	2	2
83	Valve, Slide	8300A132	0	0	2	2
84	Link, Solenoid	8300A027	0	0	4	4
85	Shaft	8300A053	0	0	2	2
86	Spring	8300A049	0	0	4	4
87	Bracket	8300A050	0	0	2	2
88	Gasket	8300B018	0	0	2	2
89	Cover, Solenoid Housing	8300B134	0	0	2	2
90/96	Projector Assembly (individual parts only)					
90	Gasket, Projector	8400A054	2	2	2	2
91	Projector (Horn) Assembly	8400D022	1	1	1	1
92	Support Assembly, Projector	8400B426	1	1	1	1
93	Plate, Filler (1/4")	8400B078-02	1	1	1	1
94	Plate, Filler (1/8")	8400B078-01	2	2	2	2
95	Bracket, Screen Mounting	8400A111	4	4	4	4
96	Screen, Projector	8400A083	1	1	1	1
Not Shown **	Motor, Rotator 480Volt (Used in place of Item No. 33)	8283A853	1	1	1	1
***	Parts required for field installation of item 67, Chopper Motor					
	Cap, Brush Holder	8400A460	AR	AR	AR	AR
	Brush Holder	8400A461	AR	AR	AR	AR

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, series, voltage, description, and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

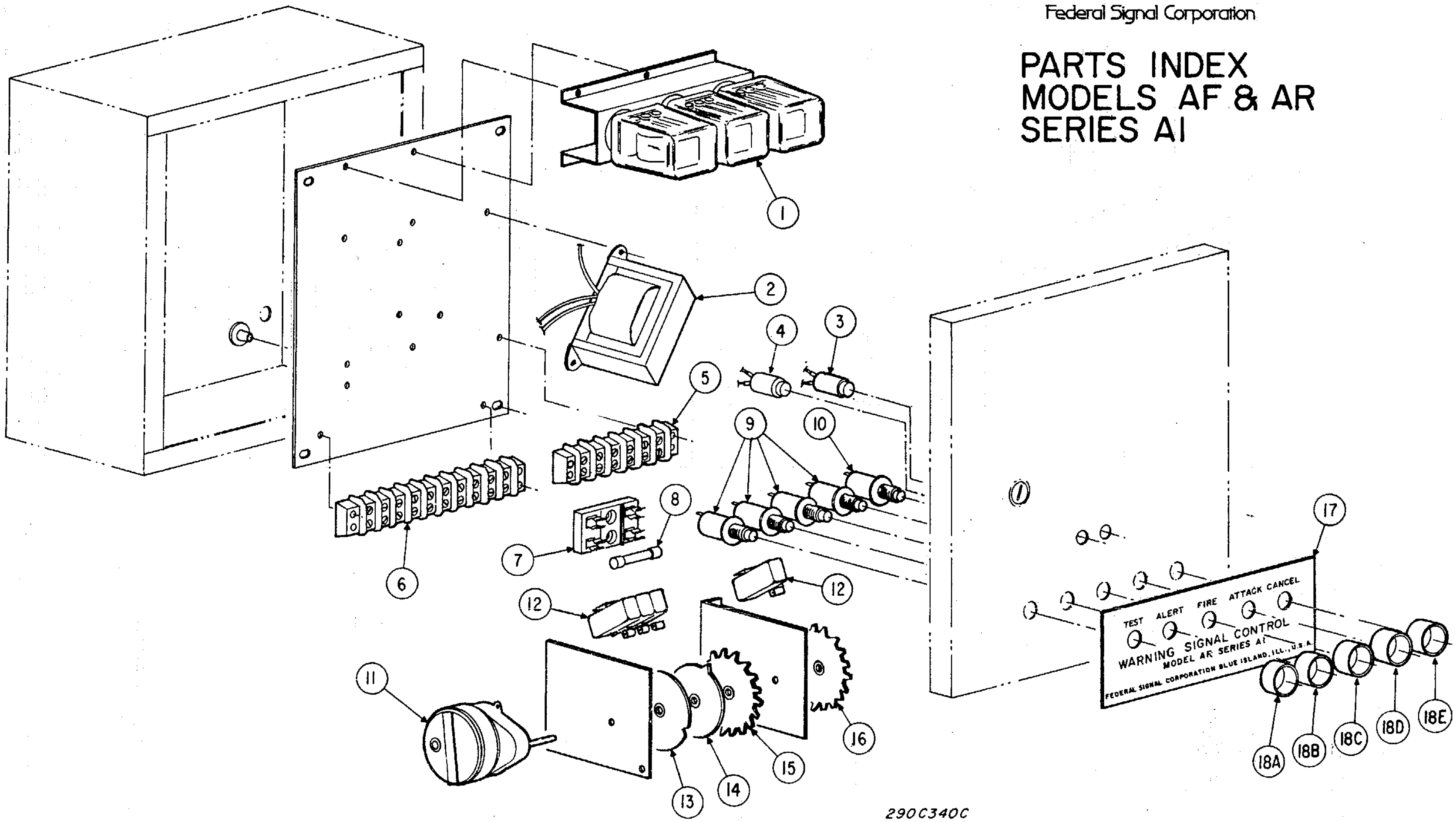
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TIMER
&
CONTROL

SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX MODELS AF & AR SERIES A1



MODEL AR and AF TIMERS

Index No.	Description	Part No.	Qty.
1	Relay (2 used on AR, 3 used on AF)	8217A082	AR
2	Transformer	8217A083	1
3	Motor Pilot Light Assembly	8217A087	1
4	Power Pilot Light Assembly	8217A213	1
5	Terminal Block, 6 terminal	8217A086	1
6	Terminal Block, 9 terminal (Model AR)	8217A173	1 AR
	Terminal Block, 10 terminal (Model AF)	8217A085	
7	Fuseholder	8217A091	1
8	Fuse, one ampere	8217A090	2
9	Switch, Red Push-button (3 used on AR, 4 used on AF)	8217A089	AR
10	Switch, Black Push-button	8217A088	1
11	Motor	8217A084	1
12	Microswitch (3 used on AR, 4 used on AF)	8217A081	AR
13	Cam Number 1	8217A092	1
14	Cam Number 2	8217A093	1
15	Cam Number 3	8217A094	1
16	Cam Number 4 (Model AF only)	8217A095	1 AR
17	Nameplate , Model AR	8146A331	1 AR
	Nameplate, Model AF	8146A330	
18A	Switch Guard, Silver	8217A097-05	1
18B	Switch Guard, Blue	8217A097-03	1
18C	Switch Guard, Red (Model AF only)	8217A097-01	1 AR
18D	Switch Guard, Yellow	8217A097-02	1
18E	Switch Guard, Black	8217A097-04	1

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.

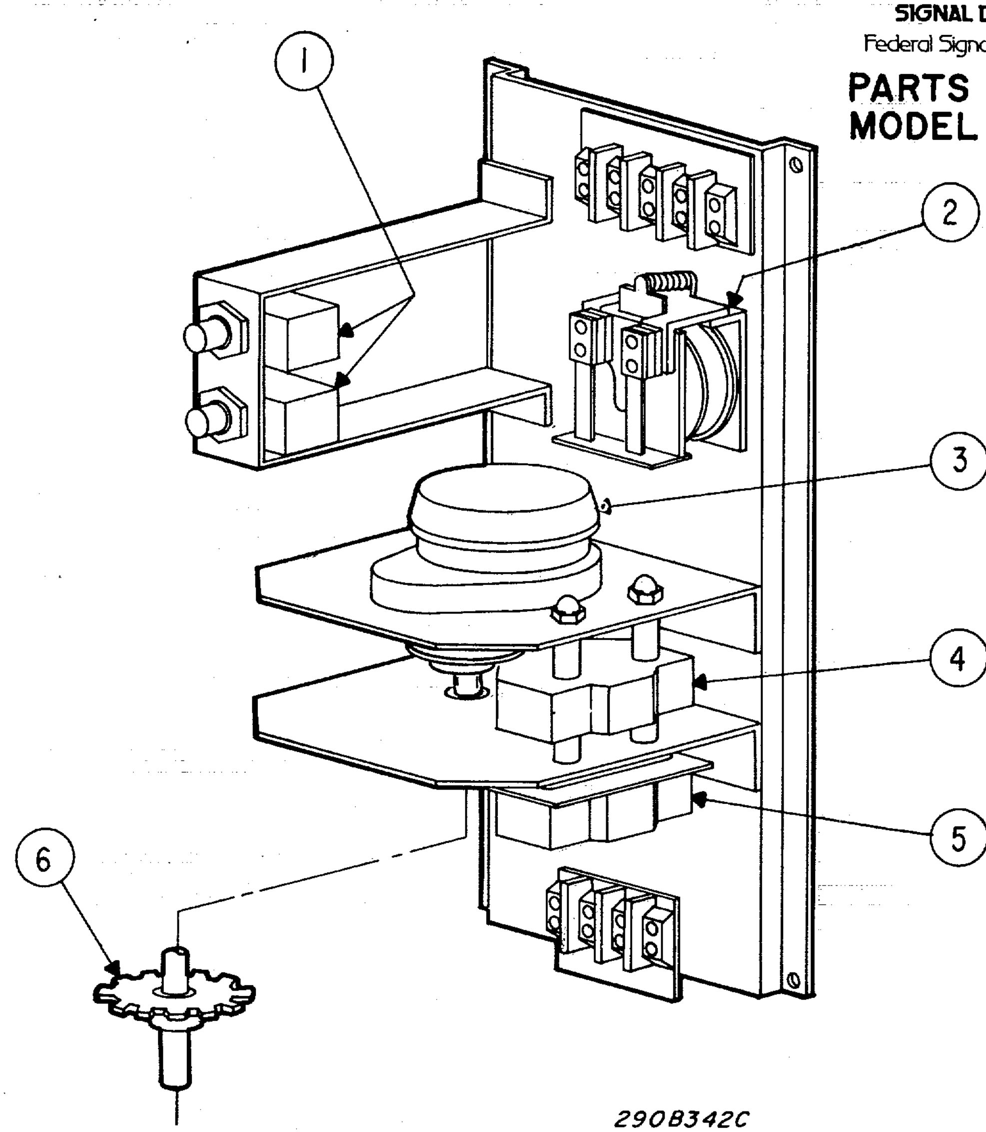
Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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PARTS INDEX MODEL PGA



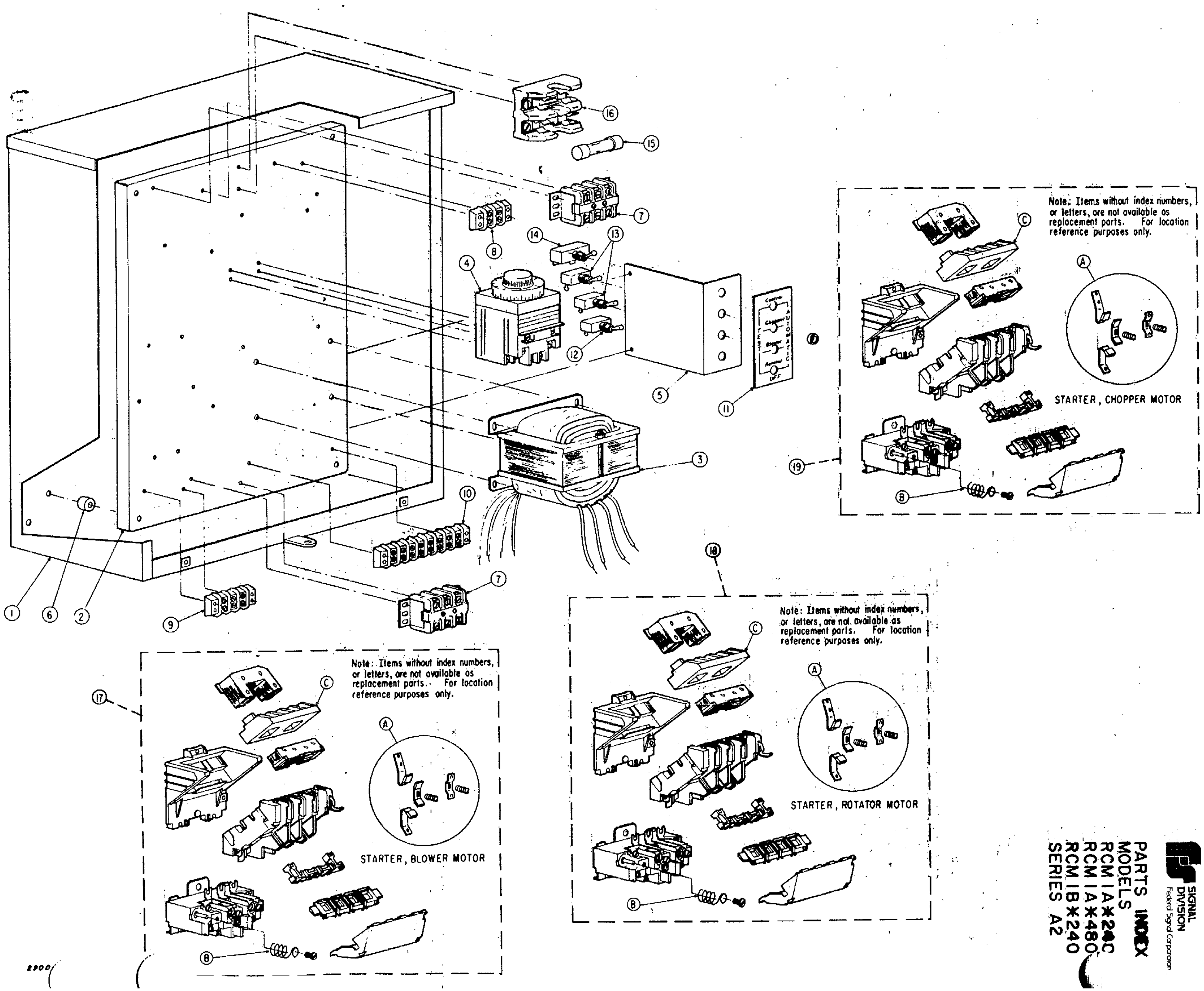
Index No.	Description	Part No.	Qty.
1	Switch (Test and Alarm)	8283A955	2
2	Relay, Holding (120V)	8283A897	1 AR
	Relay, Holding (240V)	8283A896	
3	Motor, 120Volt	8283A849	1 AR
	Motor, 240Volt	8283A848	
4	Microswitch, Motor Circuit	8283A932	1
5	Microswitch, Code Circuit	8283A933	1
6	Code Wheel (Standard) (8 on, 4 off, 10 times)	8287A213	1
Not Shown	Code Wheel, Blank (uncut)	8283A906	1
	Code Wheel, (cut for special code)	8217A200-XX	1

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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Federal Signal Corporation

PARTS INDEX
MODELS
RCM 1A*240
RCM 1A*480
RCM 1B*240
SERIES A2

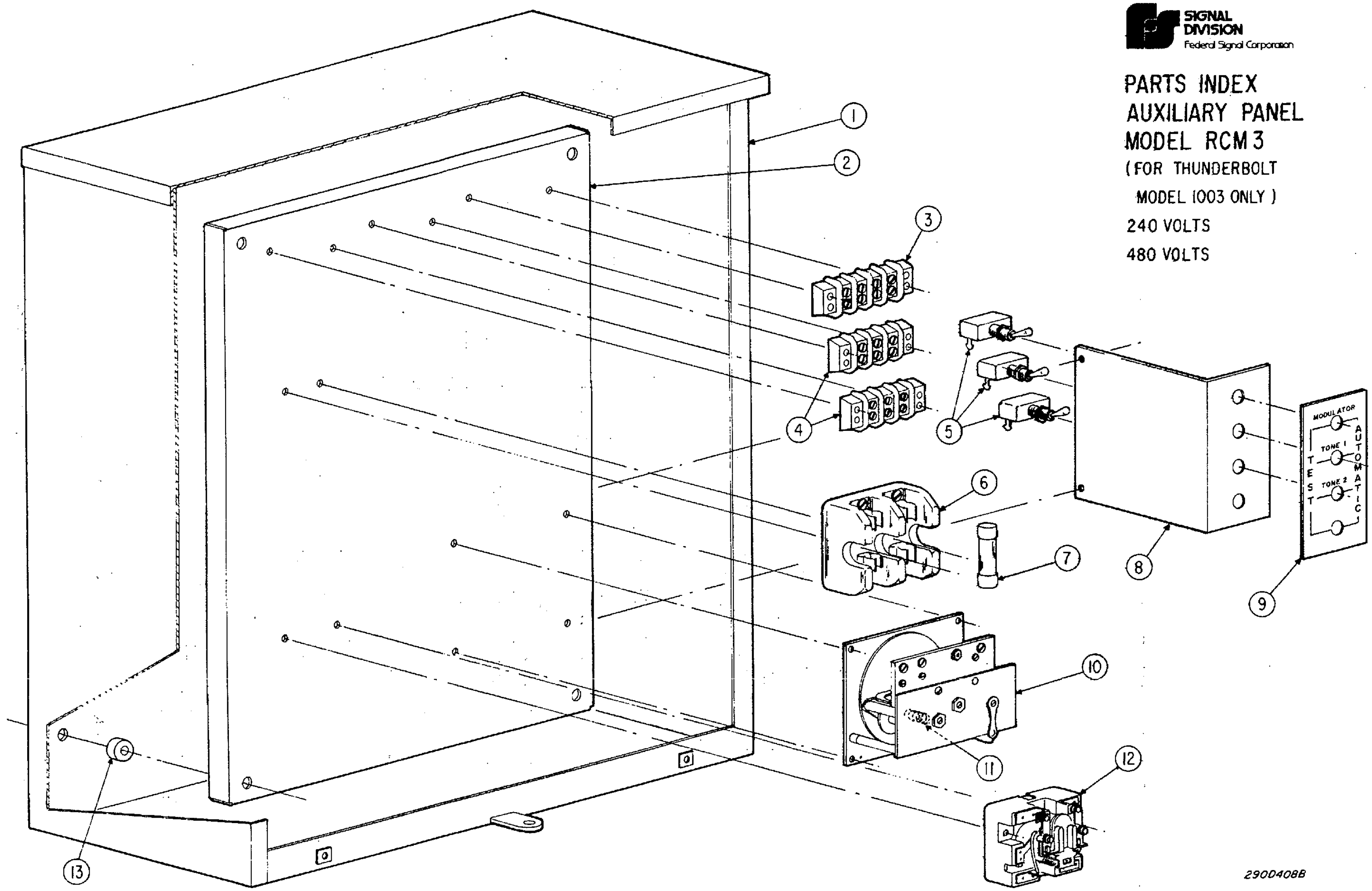
Index No.	Description	Part No.	Qty.
1	Cabinet, Control	8400D275	1
2	Panel, Control	8400D171	1
3	Transformer, Auto (240-volt)	8400A248	1AR
	Transformer, Auto (480-volt)	8400A092	
4	Relay, Time Delay (240-volt)	8287A098	1AR
	Relay, Time Delay (480-volt)	8287A098-01	
5	Bracket, Switch (240-volt)	8400B030	1AR
	Bracket, Switch (480-volt)	8400B103	
6	Spacer	8400A050	4
7	Terminal Block	8283A885	2
8	Terminal Block	8400A245	1
9	Terminal Block	8283A902	1
10	Terminal Block	8400A246	1
11	Nameplate, Control Switch (240-volt)	8400A052	1AR
	Nameplate, Control Switch (480-volt)	8400A104	
12	Switch, Toggle, SPDT (240-volt)	8283A871	1AR
	Switch, Toggle, SPDT (480-volt)	8283A874	
13	Switch, Toggle, SPDT (240-volt)	8283A872	2AR
	Switch, Toggle, SPDT (480-volt)	8283A876	
14	Switch, Toggle, SPDT (240-volt)	8283A883	1AR
	Switch, Toggle, SPDT (480-volt)	8283A875	
15	Fuse, FRS-15 (240-volt)	8400A262	2AR
	Fuse, FRS-10 (480-volt)	8400A351	
16	Base, Fuse, Multi 2502 (240-volt)	8445A074	1AR
	Base, Fuse, Multi 2520 (480-volt)	8400A350	
17	Starter, Blower Motor (240-volt, 3-phase)	8217C188	1AR
	Starter, Blower Motor (480-volt, 3-phase)	8217C188-01	
	Starter, Blower Motor (240-volt, 1-phase)	8217C189	
17A	Contacts and Springs, Interlock Pole 75AF14	8217C180-12	1
	Contacts and Springs, Power Pole 75DF14 (3-phase)	8217C188-11	3AR
	Contacts and Springs, Power Pole 75EF14 (1-phase)	8217C180-11	3AR
17B	Heater, H42 (240-volt, 3-phase)	8217C188-21	3
	Heater, H34 (480-volt, 3-phase)	8217C188-22	3
	Heater, H47 (240-volt, 1-phase)	8217C189-20	1
17C	Coil, Motor Starter 75D73070C	8217C180-17	1
18	Starter, Rotator Motor (240-volt)	8217C186	1AR
	Starter, Rotator Motor (480-volt)	8217C192	
18A	Contacts and Springs, Interlock Pole 75AF14	8217C180-12	1
	Contacts and Springs, Power Pole 75BF14	8217C186-11	3
18B	Heater, H21 (240-volt)	8217C186-19	1
	Heater, H9 (480-volt)	8217C192-19	3
18C	Coil, Motor Starter 75D73070C	8217C180-17	1AR
19	Starter, Chopper Motor (240-volt)	8217C187	1AR
	Starter, Chopper Motor (480-volt)	8217C187-01	
19A	Contacts and Springs, Interlock Pole 75AF14	8217C180-12	1
	Contacts and Springs, Power Pole 75CF14	8217C187-11	3
19B	Heater, H32 (240-volt)	8217C187-19	1AR
	Heater, H27 (480-volt)	8217C187-20	
19C	Coil, Motor Starter 75D73070C	8217C180-17	1
Not Shown	Cover, Front	8400D276	1

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.

Refer to PARTS PRICE LIST (Part No. PPL1001) for prices of parts.

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PARTS INDEX
AUXILIARY PANEL
MODEL RCM3
(FOR THUNDERBOLT
MODEL 1003 ONLY)
240 VOLTS
480 VOLTS

MODEL RCM 3
AUXILIARY PANEL

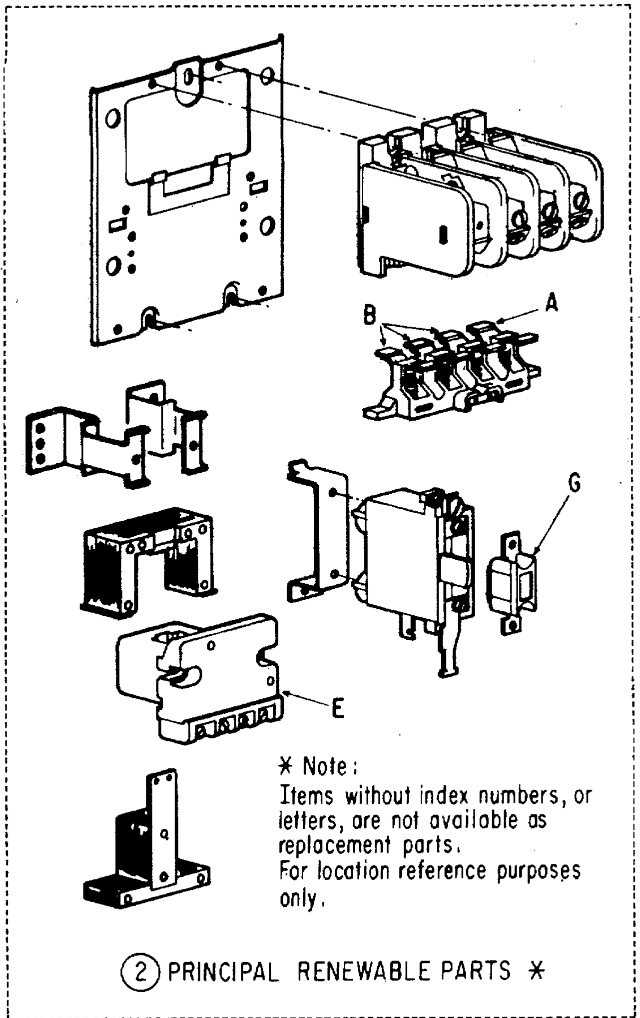
Index No.	Description	Part No.	Qty.
1	Control Cabinet Assembly	8400D275	1
2	Panel, Control	8300D058	1
3	Block, Terminal	8400A244	1
4	Block, Terminal	8283A902	2
5	Switch, Toggle SPDT	8283A872	3
6	Base, Fuse Cutout	8445A074	1
7	Fuse ECN-10	8445A085	2
8	Bracket, Switch	8400B030	1
9	Nameplate	8400A180	1
10	Flasher	8217A054	1
11	Coil, 240V (for item 10)	8217A066	1
12	Relay, 240V, DPST	8283A880	1
	Relay, 480V, DPST	8283A880	2
13	Spacer	8400A050	4
Not Shown	Transformer (480V ONLY)	8287A078	1
	Cover, Front	8400D276	1

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

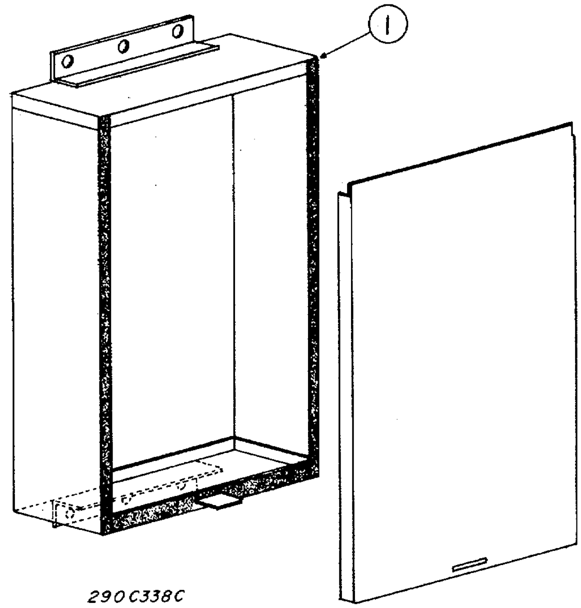
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PARTS INDEX
RC2✱120
RC2✱240
RC2W✱120
RC2W✱240
SERIES A1



MODELS : RC2*120, RC2*240, RC2W*120, RC2W*240

PPL 0062 SIREN REMOTE CONTROL AUGUST 1981

PARTS LIST

Item No.	Description	Part No.	Qty.
1	Cabinet, Weatherproof (RC2W*)	8247D002	1 AR
	Cover (seperately)	8247D002-02	
	Cabinet, Control (RC2*)	**	
2A	Contacts and Springs (Power Pole)	* 8217C182-11	3 sets
2B	Contacts and Springs (Interlock)	* 8217C180-12	1 set
2E	Coil, 60Hz, 120/240 Volt	* 8217C180-16	1
2G	Overload Heaters (K -58) 120V	* 8217C182-20	1
	Overload Heaters (K -42) 240 V	* 8217C183-20	1

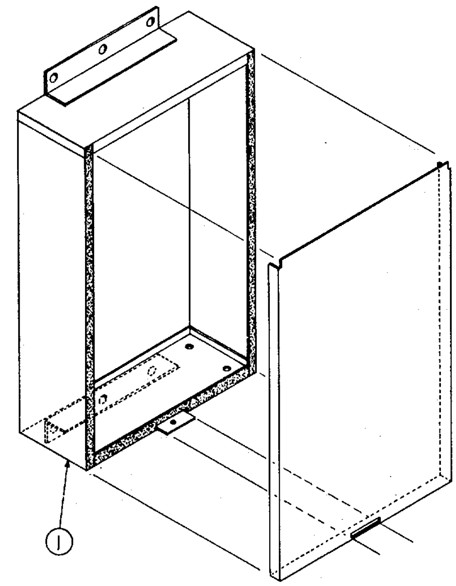
NOTE : ** Models RC2*120, and RC2*240 are housed in a NEMA General Purpose Enclosure.
* Contact Service Department for special pricing.

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description, and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for price of Item No. 1 .

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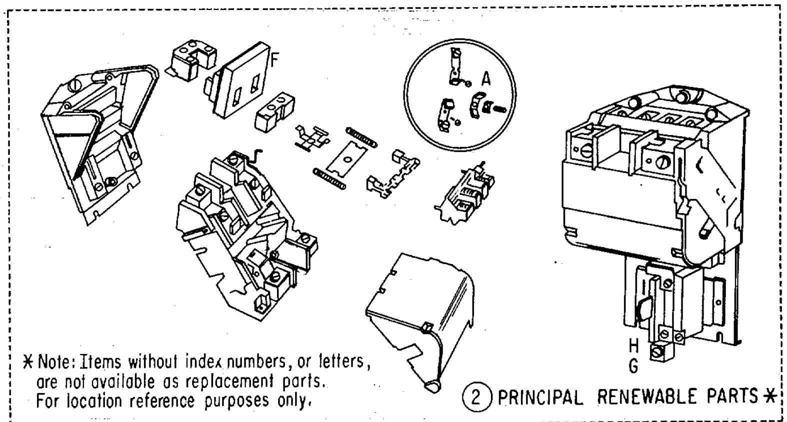
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SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX
REMOTE CONTROL
MODELS
RC5A, RC5WA
RC5B, RC5WB
SERIES AI

290C336C



MODELS : RC5A, RC5WA, RC5B, and RC5WB

PPL 0064 SIREN REMOTE CONTROL AUGUST 1981

PARTS LIST

Index No.	Description	Part No.	Models RC5 A	WA	B	WB
1	Cabinet, Weatherproof	8247D002		1		1
	Cover (seperately)	8247D002-02		1		1
	Cabinet, Control	**	1		1	
2A	Contacts & Springs, One Complete					
	Power Pole, 240V, 480V, 3 Phase	* 8217C180-11	3	3		
	Interlock Pole, All Voltages, All Models	* 8217C180-12	1	1	1	1
	Power Pole, 240V, 1 Phase	8217C211-11			2	2
2F	Coil 120 240V, 50/60 Hz, 240V, 3 Phase	8217C180-16	1	1	1	1
	Coil 240/480V, 50/60 Hz, 480V, 3 Phase	8217C180-17	1	1		
2G	Overload Relay Heaters, 480V,					
	Std. Bi-Metal, 1 Pole	8217C211-17			1	1
2H	Overload Relay Heaters					
	240V, 1 Phase, K72	* 8217C211-18			1	1
	240V, 3 Phase, K75	* 8217C180-20	3	3		
	480V, 3 Phase, K64	* 8217C180-21	3	3		
	550V, 3 Phase, K63	* 8217C204-20	1	1		
Not Shown	Model RC5A (Complete)	8217C180	1			

NOTE : ** Models RC5A, and RC5B, are housed in a NEMA 1 General Purpose Enclosure.
* Contact Customer Service Department for Special Pricing.

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description, and part number.

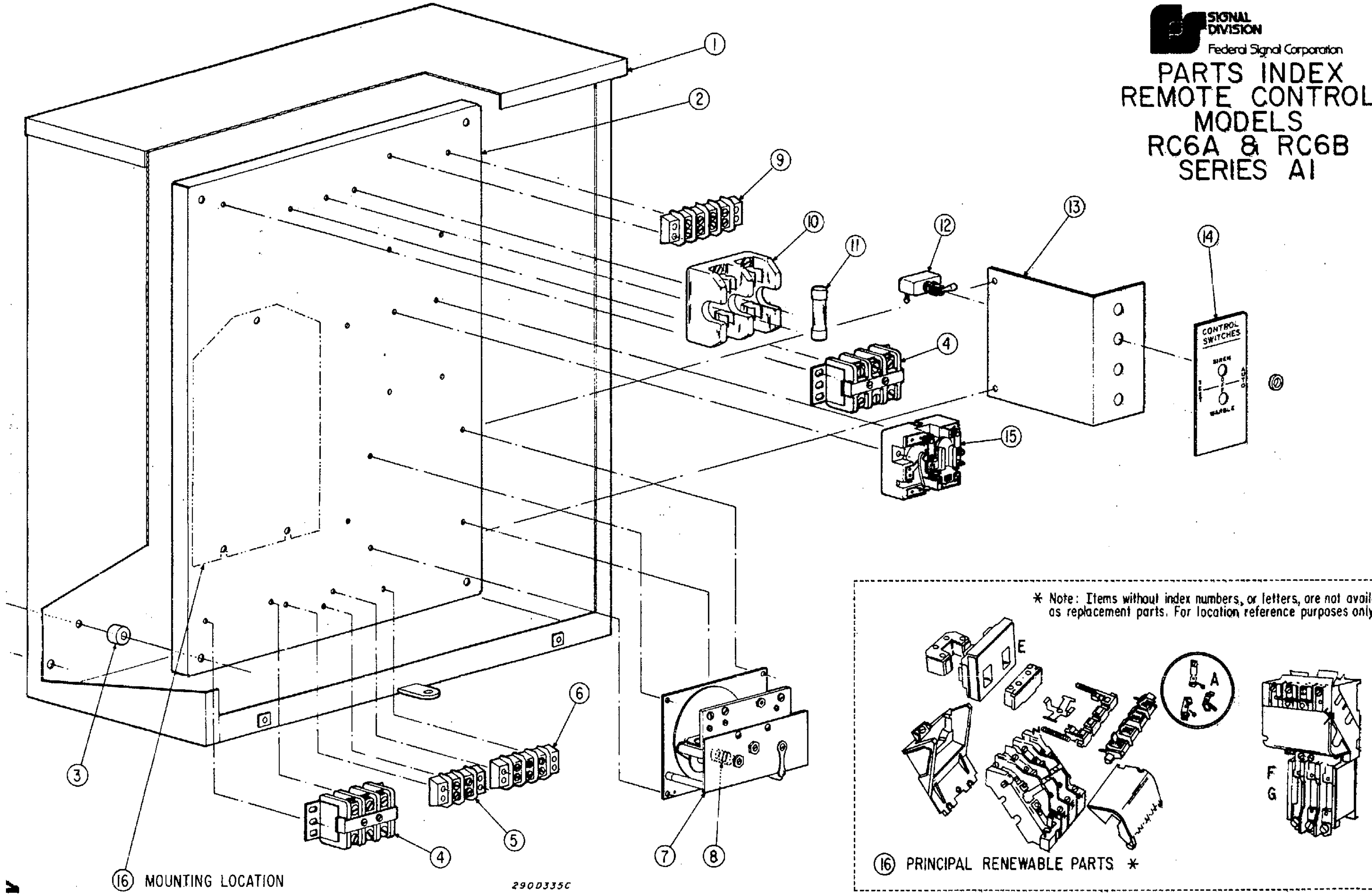
Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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PARTS INDEX REMOTE CONTROL MODELS RC6A & RC6B SERIES A1



* Note: Items without index numbers, or letters, are not available as replacement parts. For location reference purposes only.

(16) PRINCIPAL RENEWABLE PARTS *

MODELS RC6A and RC6B
SIREN REMOTE CONTROL

PPL 0063
PARTS LIST

AUGUST 1981

Index No.		Description	Part No.	Qty.
1		Cabinet, Control	8400D275	1
2		Panel, Control Cabinet	8445D059	1
3		Spacer	8440A050	4
4		Terminal Block	8283A885	2
5		Terminal Block	8400A245	1
6		Terminal Block	8283A902	1
7		Flasher	8217A054	1
8		Coil, 240V (for item 7)	8217A066	1
9		Terminal Block	8400A244	1
10		Base, Multi-Fuse Cut Out	8445A074	1
11		Fuse, E C N - 10	8445A085	2
12		Toggle, Switch S.P.D.T. Center Off	8283A871	2
13		Bracket, Switch	8400B030	1
14		Nameplate	8445A042	1
15		Relay D.P.S.T.	8283A880	1
16A		Contacts and Springs, One Complete		
	**	Power Pole RC6A, 240V, 480V , 3 Ph.	8217C180-11	3 AR
		Power Pole RC6B, 240V, 1 Ph.	8217C211-11	2 AR
	**	Interlock Pole, All Models & Voltages	8217C180-12	1
16E		Coil 120/240V, 50/60 Hz, RC6A, RC6B		
		240V, 1 Ph., 3 Ph.	8217C180-16	1
		Coil 240/480V, 50/60 Hz, RC6A		
		480V, 3 Ph.	8217C180-17	1
16F		Overload Relay Heaters		
	**	240V, 1 Ph., Siren K72	8217C211-18	1
16G		Overload Relay Heaters		
	**	240V, 3 Ph., Siren K75	8217C180-20	3
	**	480V, 3 Ph., Siren K64	8217C180-21	3
Not Shown		Transformer 480V Primary RC6A, 480V, 3 Ph. , 240V Secondary	8287A078	1

** Note, Contact Customer Service Dept. for special pricing.

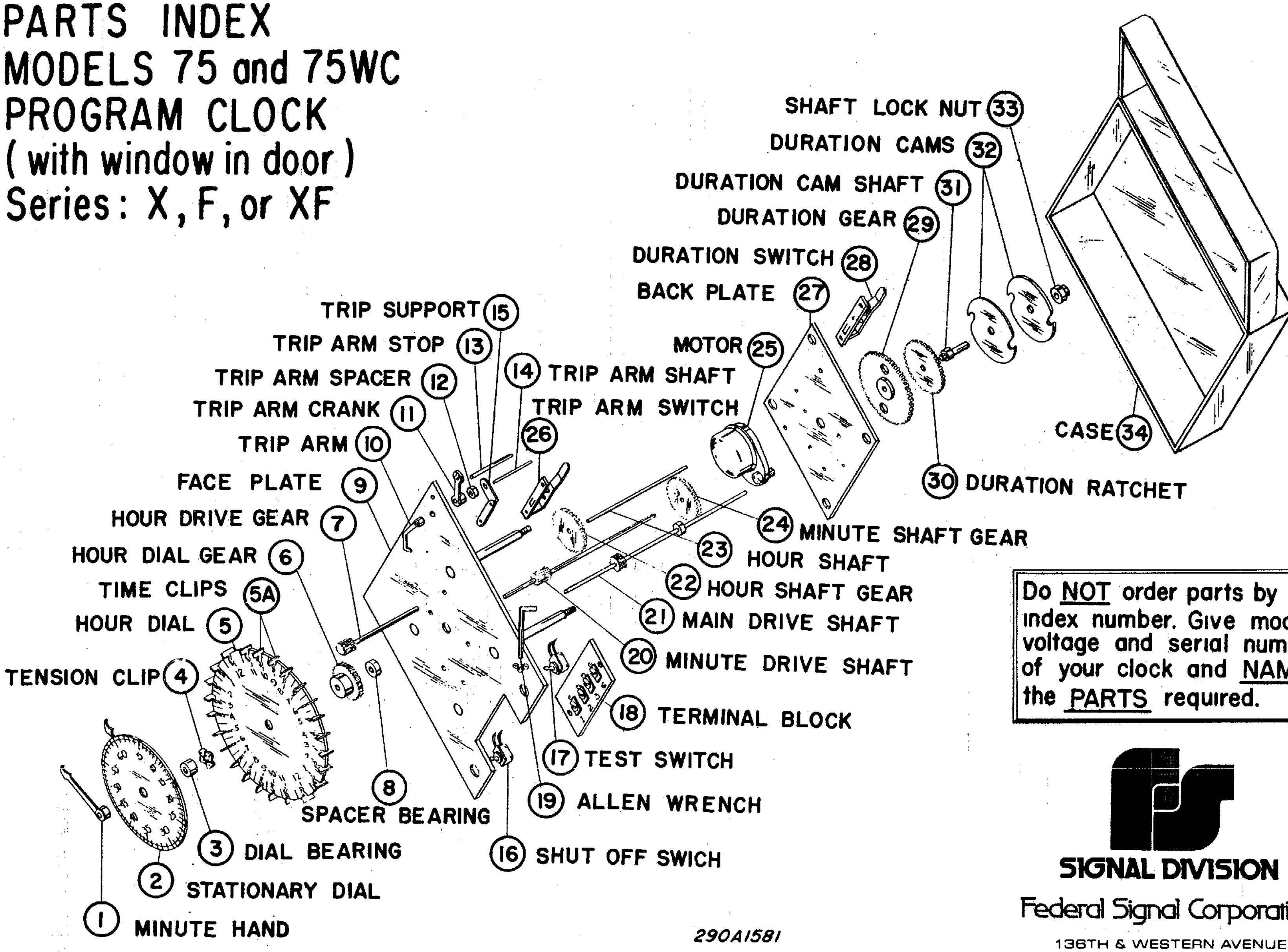
DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description, and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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PARTS INDEX
MODELS 75 and 75WC
PROGRAM CLOCK
(with window in door)
Series : X , F , or XF



Do NOT order parts by index number. Give model, voltage and serial number of your clock and NAME the PARTS required.

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MODEL No. 75 and 75WC
PROGRAM CLOCK
Series : X, F, T, and XF

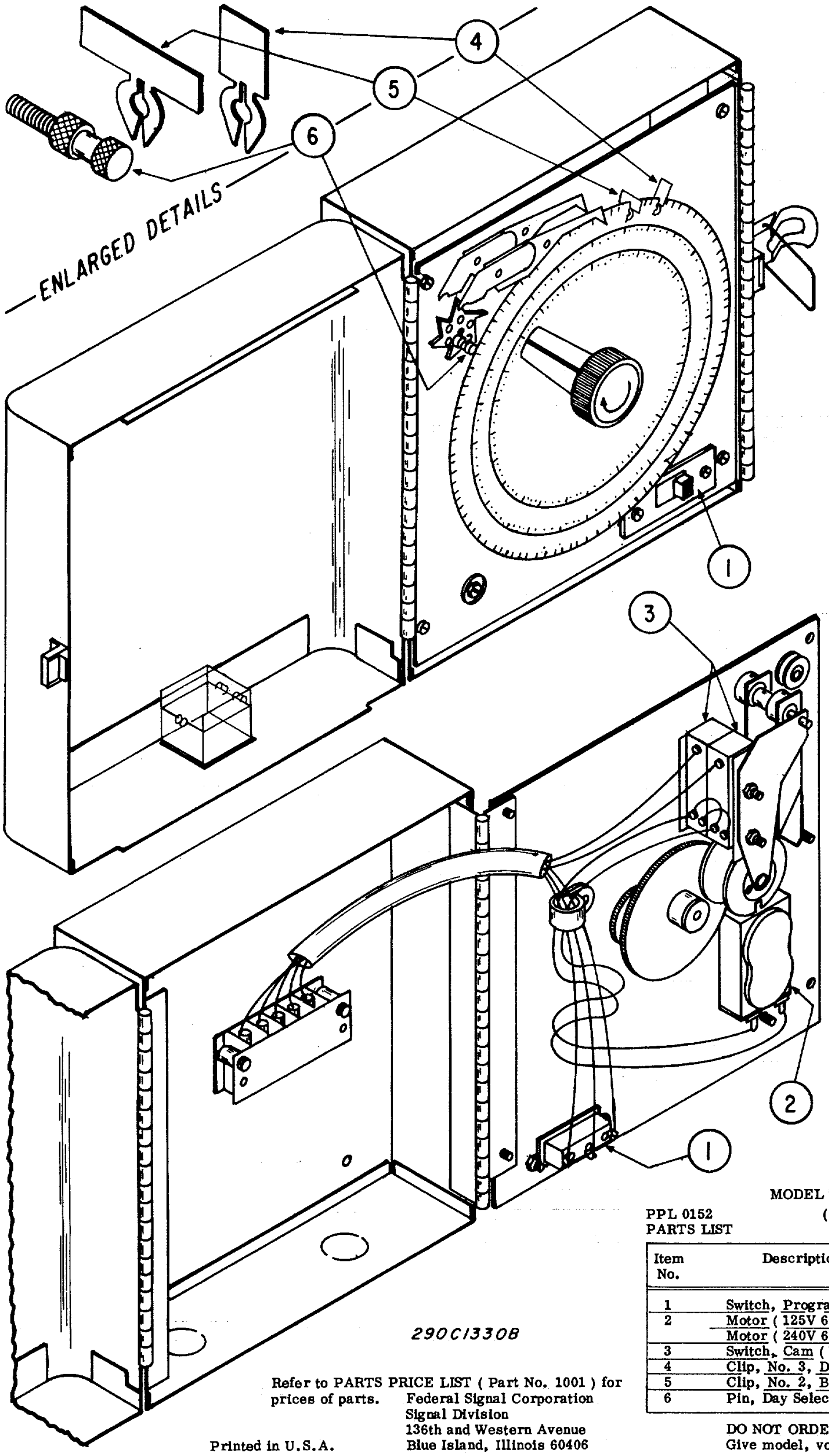
PPL 0095 AUGUST 1981
PARTS LIST

Index No.	Description
1	Minute Hand
2	Stationary Dial
3	Dial Bearing
4	Tension Clip
5	Hour Dial
5A	Time Clips
6	Hour Dial Gear
7	Hour Drive Gear (with shaft)
8	Spacer Bushing
9	Face Plate
10	Trip Arm
11	Trip Arm Crank
12	Trip Arm Spacer
13	Trip Arm Stop
14	Trip Arm Shaft
15	Trip Support
16	Shut Off Switch
17	Test Switch
18	Terminal Block
19	Allen Wrench
20	Minute Drive Shaft
21	Main Drive Shaft
22	Hour Shaft Gear
23	Hour Shaft (with gear)
24	Minute Shaft Gear
25	Motor
26	Trip Arm Switch
27	Back Plate
28	Duration Switch
29	Duration Gear
30	Duration Ratchet
31	Duration Cam Shaft
32	Duration Cams
33	Shaft Locknut
34	Case

DO NOT ORDER PARTS BY INDEX NUMBER. Give model, voltage, and serial number of your clock and NAME the parts required.

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PARTS INDEX MODEL 75WC PROGRAM CLOCK

(without window)

NOTE: Items without index numbers, or letters, are not available as replacement parts. For location reference purposes only.

MODEL 75WC PROGRAM CLOCK

PPL 0152 (Without Window) AUGUST 1981

PARTS LIST

Item No.	Description	Part Number	Qty.
1	Switch, Program Clock	8217A230	1
2	Motor (125V 60 cycle 3W)	8217A228	1AR
	Motor (240V 60 cycle 3W)	8217A228-01	
3	Switch, Cam (WHBT 1210-1)	8217A229	2
4	Clip, No. 3, Day Selector	8217A226-02	AR
5	Clip, No. 2, Both Levers	8217A226-01	AR
6	Pin, Day Selector	8217A226-03	AR

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description, and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

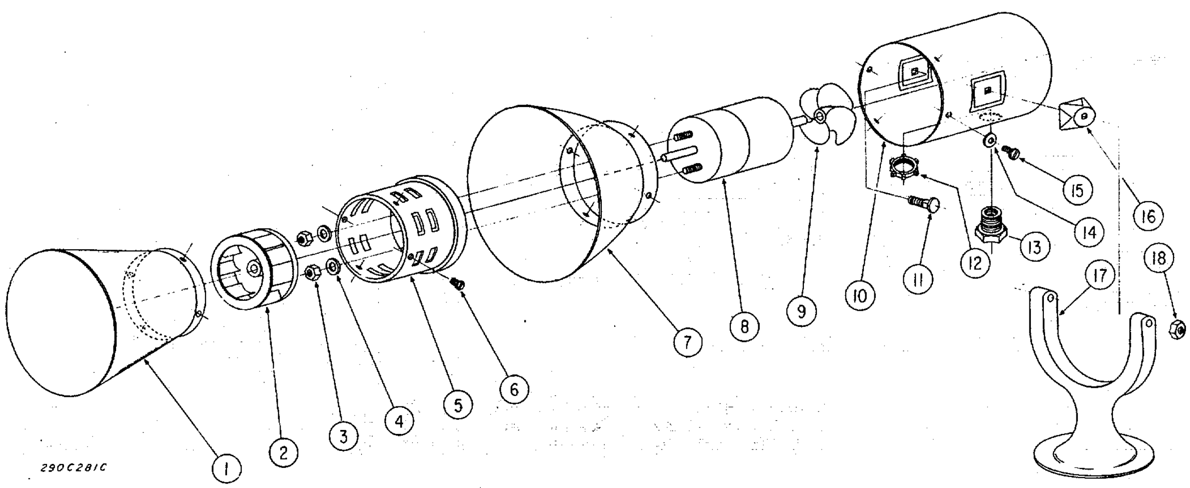
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INDUSTRIAL

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PARTS INDEX
MODEL A
SERIES AI AND B
MODEL J
SERIES AI



PPL0065 MODEL A AND J SIRENS AUGUST 1981
PARTS LIST

Index No.	Description	Part No.	Qty.
1	Projector, Inner	H7591	1
2	Rotor Assembly	8179A046-03	1
3	10-32 Keps Hex Nut	7058A004	2
4	10-32 Washer, 5/8 OD x .032 Thk.	7072A012	2
5	Stator	8118C023	1
6	6-32 x 3/16 Screw, Binder Head	7000A004-03	4
7	Projector, Outter	H5216	1
8	Motor, 6 Volt Model A Series A1	8169B013	1AR
	Motor, 12 Volt Model A Series A1	8169B010	
	Motor, 24 Volt Model A Series A1	8169B011	
	Motor, 48 Volt Model A Series A1	8169B016	
	Motor, 120 Volt Model A Series B	8169B012-01	
	Motor, 115 Volt Model J Series A1	8283A699	
	Motor, 230 Volt Model J Series A1	8283A700	
9	Motor, Fan Model A Series B	8118A015	1
10	Housing, Model A Series B (includes fittings)	8118B037-01	1AR
	Housing, All others (includes fittings)	8117B007-OD	
11	3/8-16 x 1 -1/2 Carriage Bolt	7004A004-24	2
12	3/4 NPT Locknut	7065A023	1
13	3/4 to 1/2 NPT Bushing part of item 10	8118A016	1
14	Washer 3/8 OD x 3/16 ID x 1/32 Thk. part of item 10	7072A005	4
15	8-32 x 1/2 Screw, Round Head	7006A007-08	4
16	Clamp	H304	2
17	Base	H314	1
18	3/8-16 Hex Nut	7057A032	2
Not Shown	Instruction Tag	8118A017	1

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, series, voltage, description, and part number.

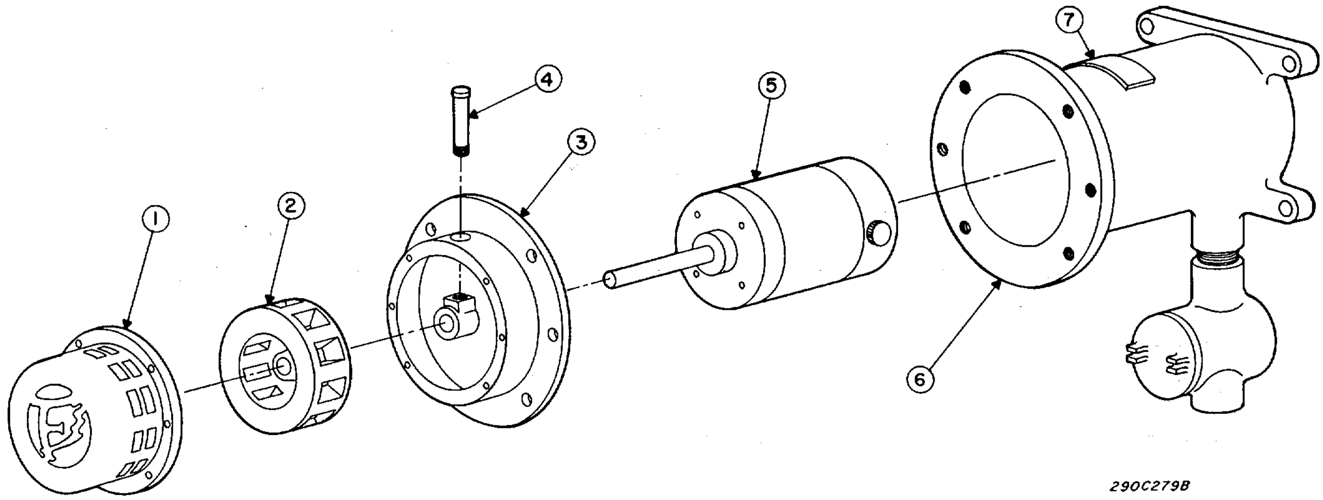
Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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PARTS INDEX
MODEL AX



Model AX EXPLOSION-PROOF SIREN

PPL 0066
PARTS LIST

AUGUST 1981

Index No.	Description	Part No.	Qty.
1	Stator, 10 Port	H5233-OF	1
2	Rotor, 10 Port	H5146-OA	1
3	Support, Motor	H5231-01	1
4	Oiler, 3"	H780	1
5	Motor	*	
6	Housing	H5232-01	1
7	Nameplate	H5254	1
Not Shown	*The following parts are part of the Motor (item 5):		
	Armature (includes bearing)	8206B002-01	1
	Field (includes rear end bell)	8206B002-02	1
	Front End Bell	8206B002-03	1
	Brush and Spring	8206B002-04	2
	Brush Holder Cap	8206B002-05	2

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.

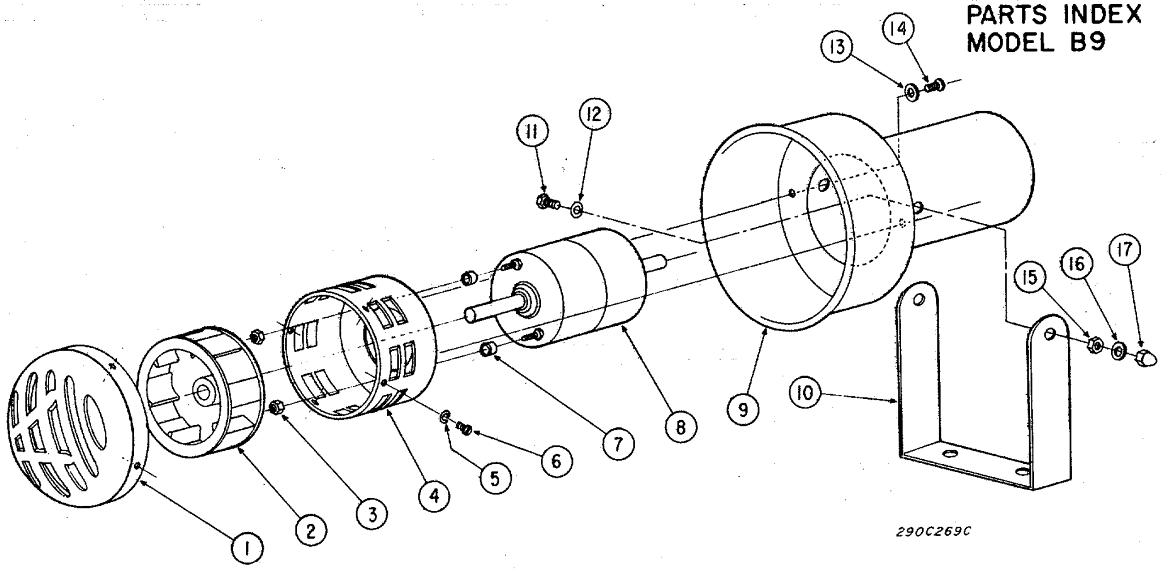
Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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PARTS INDEX
MODEL B9



PPL0067 MODEL B9 SIREN AUGUST 1981
PARTS LIST

Index No.	Description	Part No.	Qty.
1	Grill, Die Cast	H5410	1
2	Rotor Assembly	8179A046-03	1
3	10-32 Nut, Hex	7059A014	4
4	Stator	H5502-01	1
5	#6 Washer, Shakeproof	7075A002	4
6	6-32 Screw, Round Head	7000A057-03	4
7	Spacer	8179A027	2
8	Motor, 12 Volt	8169B010	1AR
	Motor, 24 Volt	8169B011	
	Motor, 32 Volt	8169B015	
	Motor, 120 Volt	8169B012-01	
9	Housing	8283C441	1
10	Bracket, Mounting	8283B442	1
11	1/4-20 x 3/4 Screw, Hex Head	7002A000-12	2
12	1/4 Washer, Shakeproof	7075A007	2
13	#10 Washer, Shakeproof	7075A026	2
14	10-32 x 1/4 Screw, Round Head	7000A068-04	2
15	1/4-20 Hex Nut, Keps	7058A005	2
16	1/4 Washer , Flat	7072A028	2
17	1/4-20 Nut, Acorn	7054A001	2

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description, and part number.

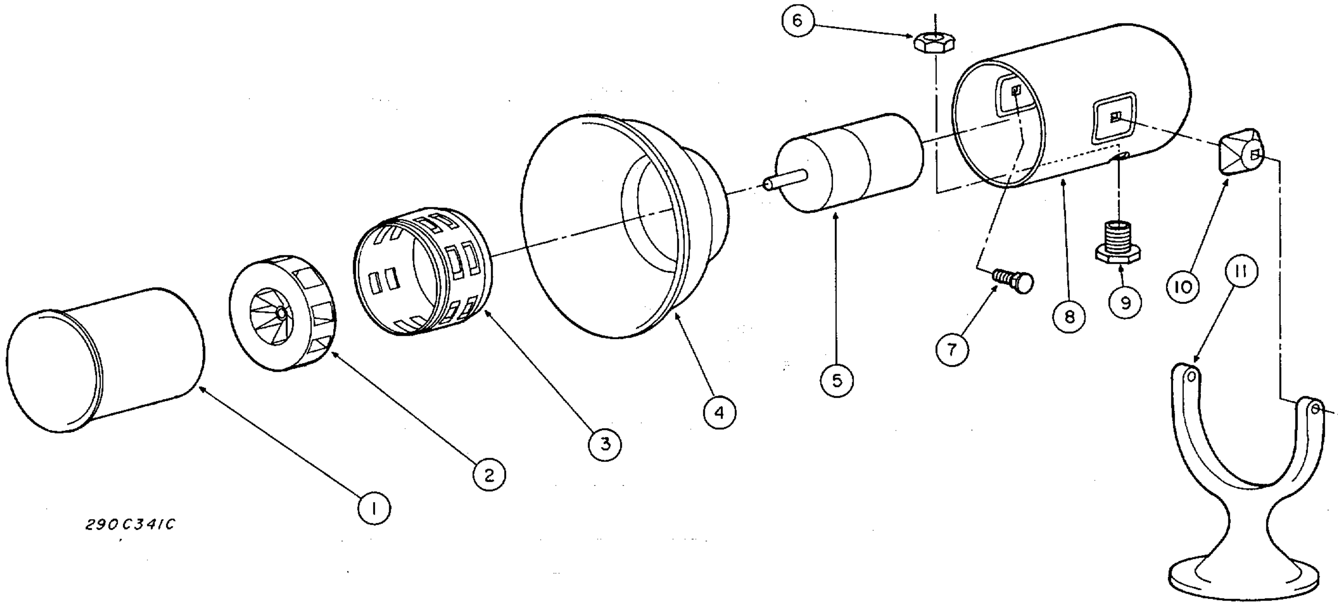
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PARTS INDEX
MODEL D



Model D SIREN

PPL 0068
PARTS LIST

AUGUST 1981

Item No.	Description	Part No.	Qty.
1	Horn, Intake	H7264	1
2	Rotor	8170B046	1
3	Stator	H7506-02	1
4	Horn, Outer	H5216	1
5	Motor, 12 Volt	8169B010	1 AR
	Motor, 24 Volt	8169B011	
	Motor, 32 Volt	8169B015	
	Motor, 48 Volt	8169B016	
	Motor, 120 Volt	8169B012	
6	Locknut, Conduit (part of item 8)	7065A023	1
7	Bolt, Carriage	7004A016-24	2
8	Housing Assembly (olive drab)	8118B037-OD	1
9	Bushing, Conduit (part of item 8)	8118A016	1
10	Clamp	H304	2
11	Base	H314	1
Not Shown			
	Instruction Tag	8118A017	1

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, voltage, description, and part number.

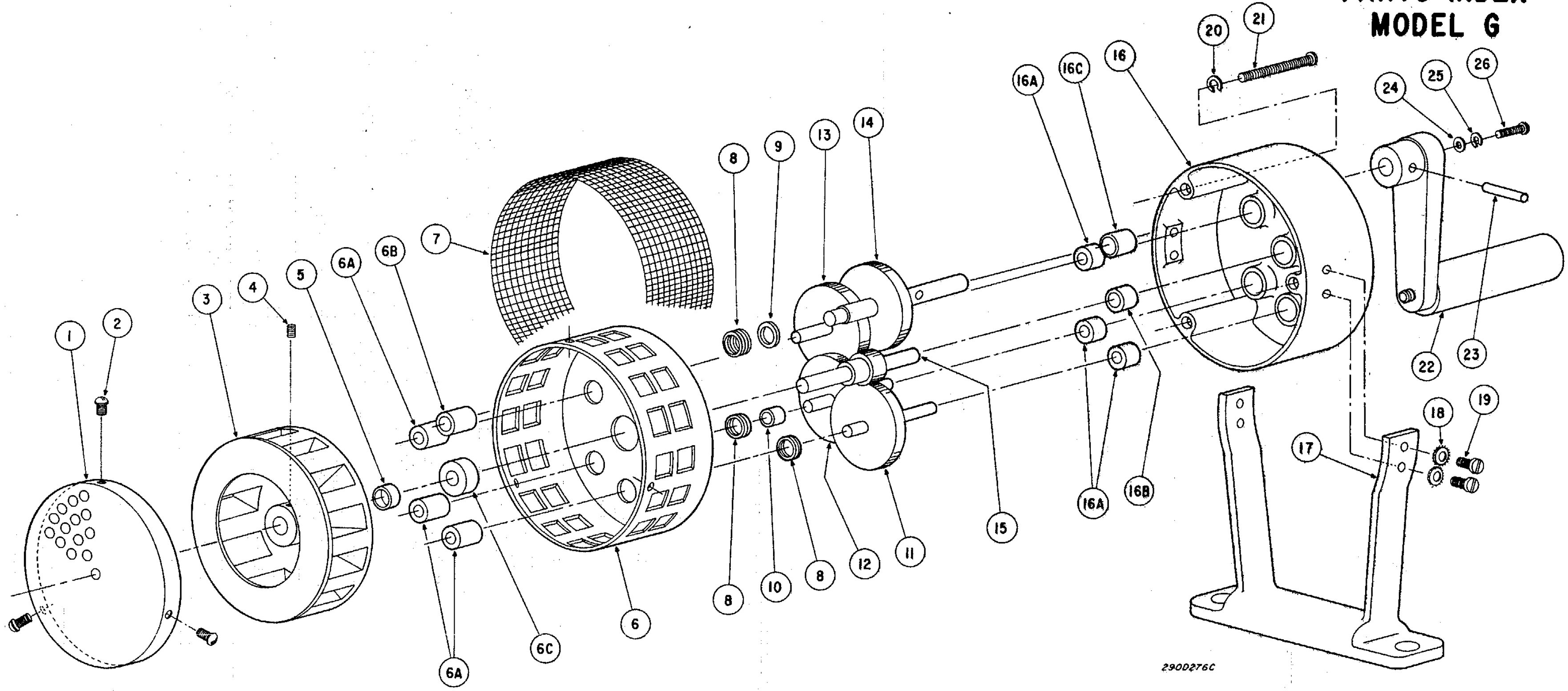
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PARTS INDEX
MODEL G



PARTS LIST

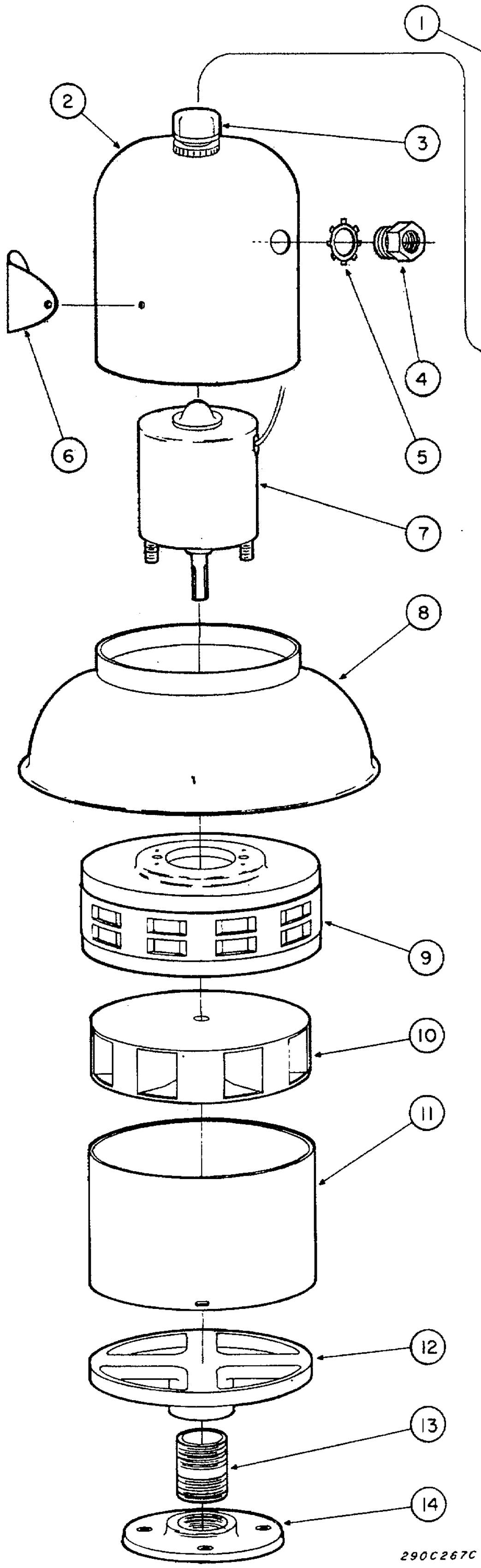
Item No.	Description	Part No.	Qty.
1	Grille	H5621	1
2	6-32 x 3/16 Screw, Rd. Hd. Sems	7006A028-03	3
3	Rotor Assembly	8270A006	1
4	10-32 Set Screw, Hex., Soc. Cup	7008A002-06	1
5	Spacer, .316 ID x .500 OD x .190 Lg.	H5651-OC	1
6	Stator and Bearing Assembly (includes items 6A, 6B, and 6C)	8270C008	1
6A	Bearing	H5618-OA	3
6B	Bearing	H5618-OB	1
6C	Bearing	H5992	1
7	Screen, Stator	H5620	1
8	Shim	7076A011	7
9	Washer, Flat, .343 ID x .750 OD x .031 Thk.	7072A031	1
10	Spacer, .255 ID x 3/8 OD x .255 Lg.	H5651-OA	1
11	First Gear and Shaft Assembly	H5638-01	1
12	Second Gear and Shaft Assembly	H5638-02	1
13	Third Gear and Shaft Assembly	H5638-03	1
14	Main Drive Gear and Shaft Assembly	H5638-04	1
15	Rotor Gear and Shaft Assembly	H5638-05	1
16	Housing Assembly (includes items 16A, 16B, and 16C)	H5583	1
16A	Bearing	H5618-OA	3
16B	Bearing	H5618-OB	1
16C	Bearing	H5618-OC	1
17	Handle, Pedestal Bracket	H969	1
18	# 10 Lockwasher, Ext. Th. Ctsk.	7075A063A	4
19	10-32 x 7/16 Screw, Flt. Hd. Slt.	7000A209-07	4
20	# 8 Lockwasher, Split	7074A004	3
21	8-32 x 1-1/2 Screw, Fil Hd.	7000A154-24	3
22	Handle and Crank Arm Assembly	8270A005	1
23	Pin, Roll 5/32 Dia. x 7/8 Lg.	7091A012A	1
24	Washer, Flat 1/2 OD x .187 ID	7072A094	1
25	# 10 Washer, Split	7074A009	1
26	10-32 x 1/2 Screw, Rd. Hd.	7000A068-08	1
Not Shown			
	Straps (for model G Hand Siren)	8270A003	1

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, description, and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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PARTS INDEX MODELS LV & K

MODELS LV & K

PPL 0070 SIRENS
PARTS LIST AUGUST 1981

Index No.	Description	Part No.	Qty.
1	Light, Model 121-S used on 125 Volt Model K Only	8444C103	1AR
	Light, Model 121-A used on 32 Volt Model K Only	8444C055	
2	Housing Assembly with fittings, Red	8118B037-01	1
	Parts of item 2		
3	Cap, Pipe	8283A975	1
4	Bushing, Conduit	8118A016	1
* 5	Locknut, Conduit	7065A023	1
6	Nameplate	8146A025	1
7	Motor, 12 Volt	8169B010	1AR
	Motor, 24 Volt	8169B011	
	Motor, 32 Volt	8169B015	
	Motor, 48 Volt	8169B016	
	Motor, 120/125 V	8283A699	
	Motor, 240/250V	8283A700	
8	Horn, Outer	H5216	1
9	Stator	H7506-02	1
10	Rotor	8170B046	1
11	Adapter	8170B058	1
12	Flange, Mounting	8283C081	1
13	Nipple, Pipe	8287A015	1
14	Flange	8240A170	2
Not Shown			
	Pipe Mounting Kit for Model K	8444B042	1

* NOTE Item 5 fits inside of item 12, shown outside for reference only.

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description, and part no..

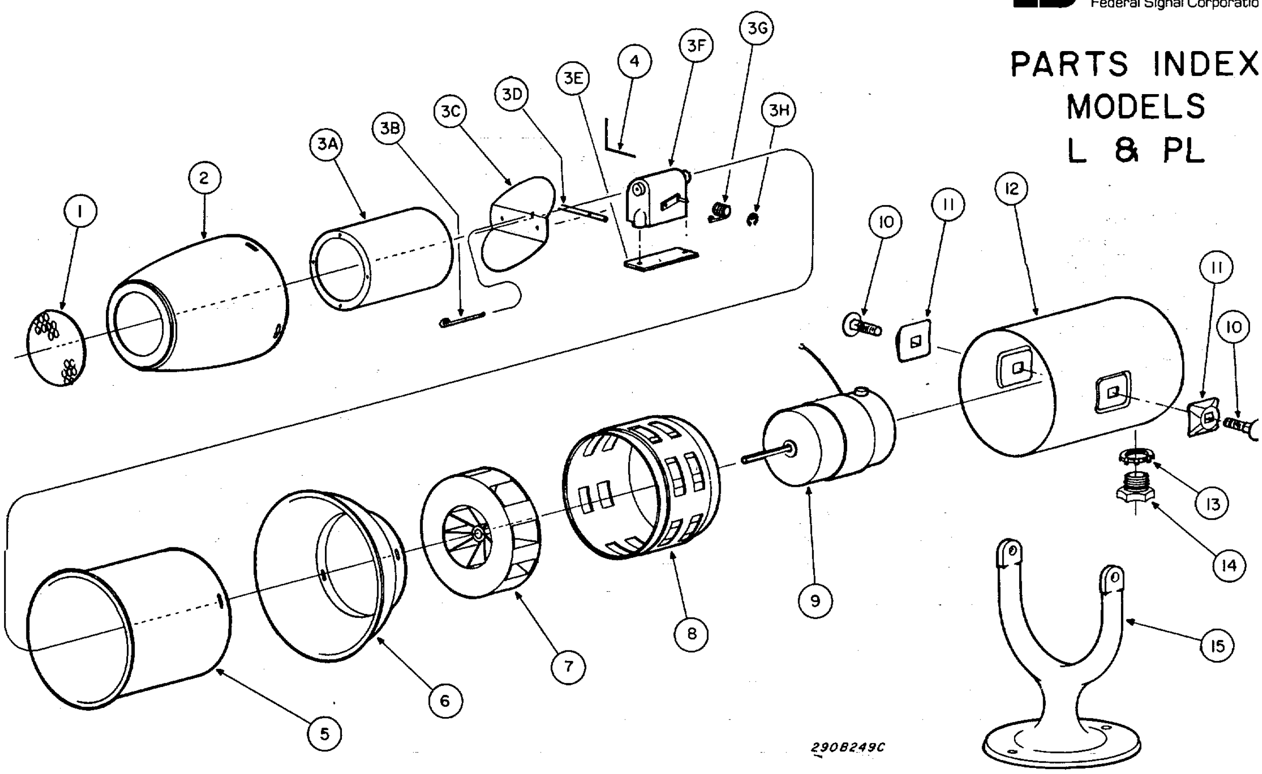
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PARTS INDEX MODELS L & PL



PPL 0071
PARTS LIST

MODELS L & PL
SIRENS

AUGUST 1981

Item No.	Description	Part No.	Qty.
1	Screen, Chrome (Model PL Only)	8284A018-01	1
2	Adapter (Model PL Only)	8284C031-02	1
3	Pulsator Assembly (consists of items 3A thru 3H)	8284D001-OA	1
3A	Inner Housing Assembly	8284B022	1
3B	Connecting Rod	8284A009	1
3C	Shutter	8284C012	1
3D	Shaft, Shutter	8284A006	1
3E	Gasket	8284A011	1
3F	Gear Box Assembly	8284B034	1
3G	Spring	8284A021	1
3H	Ring, Retaining	8284A024	1
4	Wire, Drive	8284A033	1
5	Horn, Intake (Model L Only)	H7264	1
6	Horn, Outer	H5216	1
7	Rotor, Balanced	8170B046	1
8	Stator	H7506-02	1
9	Motor, 120/240 Volts	8283A699	1AR
	Motor, 240/250 Volts	8283A700	
10	Bolt, Carriage	7004A016-24	2
11	Clamp	H304	2
12	Housing, Red (includes fittings)	8118B037	1
* 13	Locknut, Conduit (Part of item 12)	7065A023	1
14	Bushing, Conduit (Part of item 12)	8118A016	1
15	Base	H314	1

* NOTE Item 13 fits inside of item 12, shown outside for reference only.

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description, and part number.

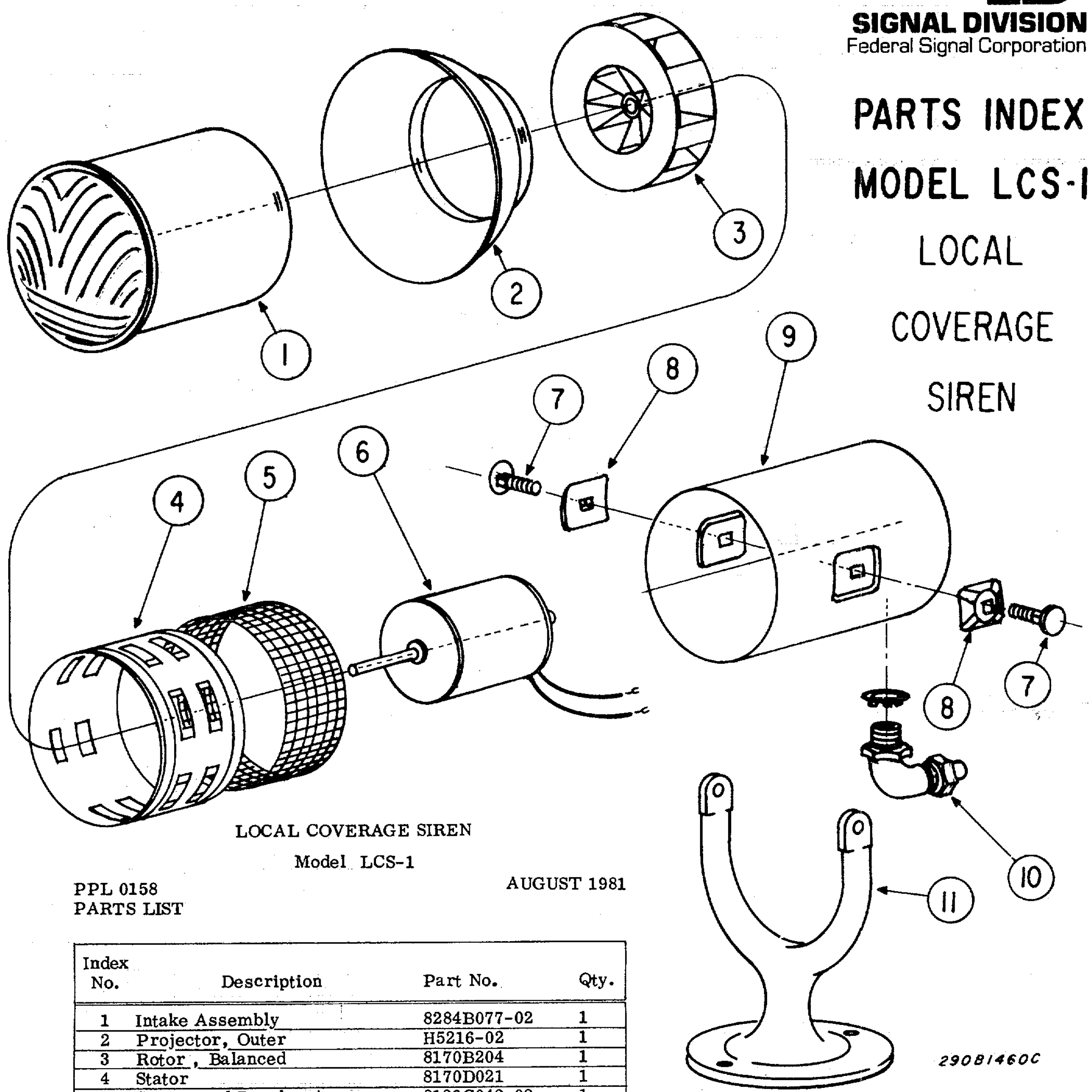
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PARTS INDEX
MODEL LCS-1
LOCAL COVERAGE SIREN



LOCAL COVERAGE SIREN

Model LCS-1

PPL 0158
PARTS LIST

AUGUST 1981

Index No.	Description	Part No.	Qty.
1	Intake Assembly	8284B077-02	1
2	Projector, Outer	H5216-02	1
3	Rotor, Balanced	8170B204	1
4	Stator	8170D021	1
5	Screen and Bracket Assy.	8126C042-02	1
6	Motor, 120 Volt	8283A699-01	1
7	Bolt, Carriage	7004A004-24	2
8	Clamp	H304-02	2
9	Housing Assembly	8118B037-02	1
10	Connector, 3/8 x 90° Conduit	8400A419	1
11	Base	H314	1

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description, and part number.

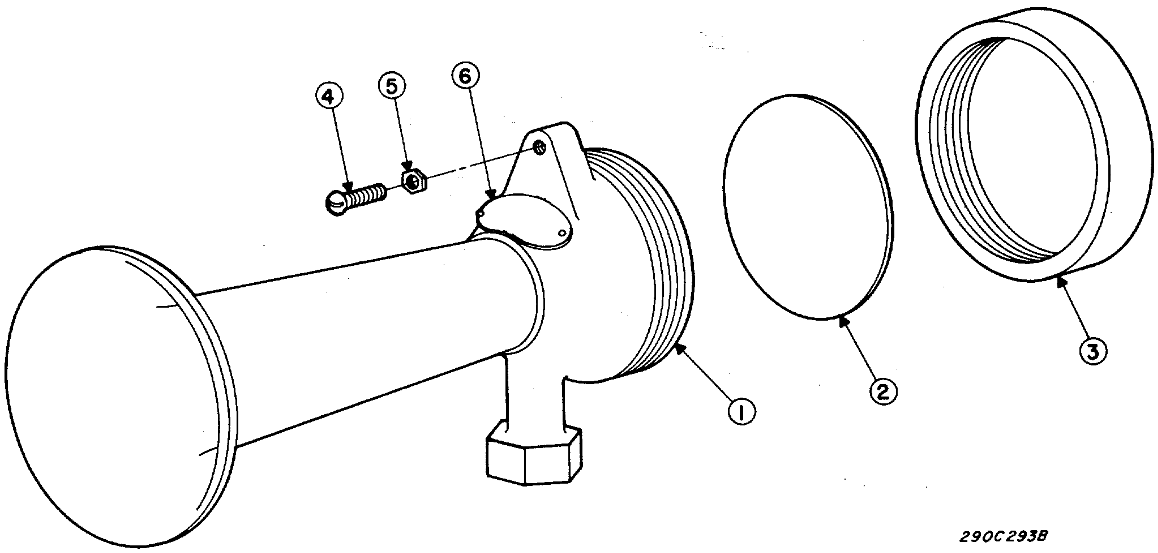
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PARTS INDEX
MODELS 3L, 3M & 3H



Models 3L, 3M, and 3H AIR HORNS

PPL 0072
PARTS LIST

AUGUST 1981

Index No.	Description	Part No.	Qty.
1	Body, Horn, Model 3L	8271C049	1 AR
	Body, Horn, Model 3M	8271C035	
	Body, Horn, Model 3H	8271C008	
2	Diaphragm, Models 3L, and 3M	8271A071	1 AR
	Diaphragm, Model 3H	8271A020	
3	Ring, Retaining, Model 3L	8271A076	1 AR
	Ring, Retaining, Models 3M and 3H	8271A009	
4	10-32 x 1 inch Screw	7000A070-16	1
5	10-32 Nut, Hex	7059A016	1
6	Nameplate	H1320	1

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, description, and part number.

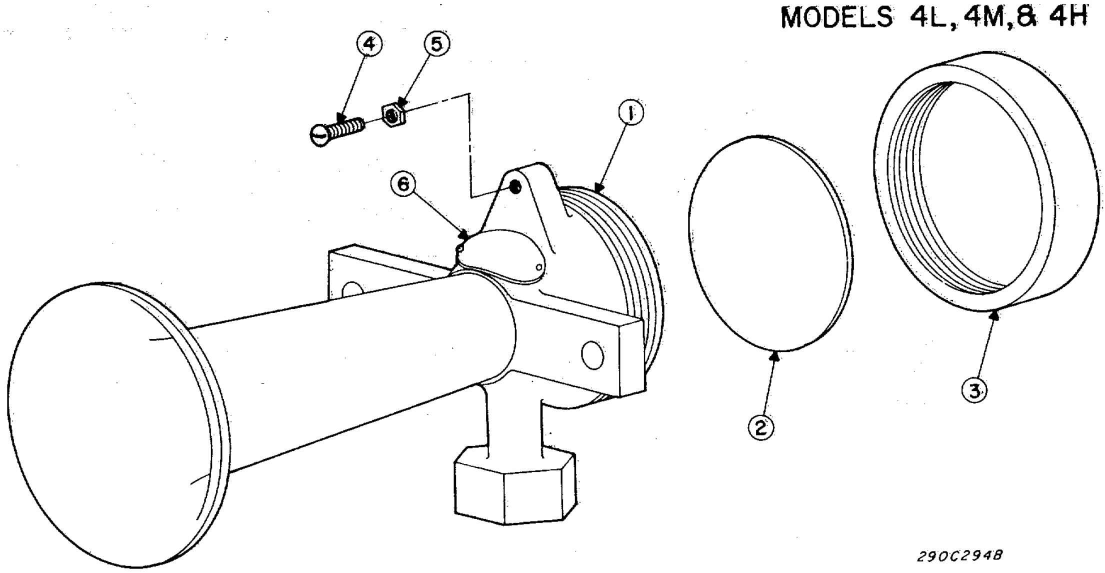
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PARTS INDEX
MODELS 4L, 4M, & 4H



Models 4L, 4M, and 4H AIR HORNS

PPL 0073
PARTS LIST

AUGUST 1981

Index No.	Description	Part No.	Qty.
1	Body, Horn, Model 4L	8271D050	1 AR
	Body, Horn, Model 4M	8271D033	
	Body, Horn, Model 4H	8271D010	
2	Diaphragm, Models 4L, and 4M	8271A072	1 AR
	Diaphragm, Model 4H	8271A013	
3	Ring, Retaining, Models 4L and 4M	8271A034	1 AR
	Ring, Retaining, Model 4H	8271A011	
4	10-32 x 1 inch Screw, Rd. Hd.	7000A070-16	1
5	10-32 Nut, Hex.	7059A016	1
6	Nameplate	H1320	1

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, description, and part number.

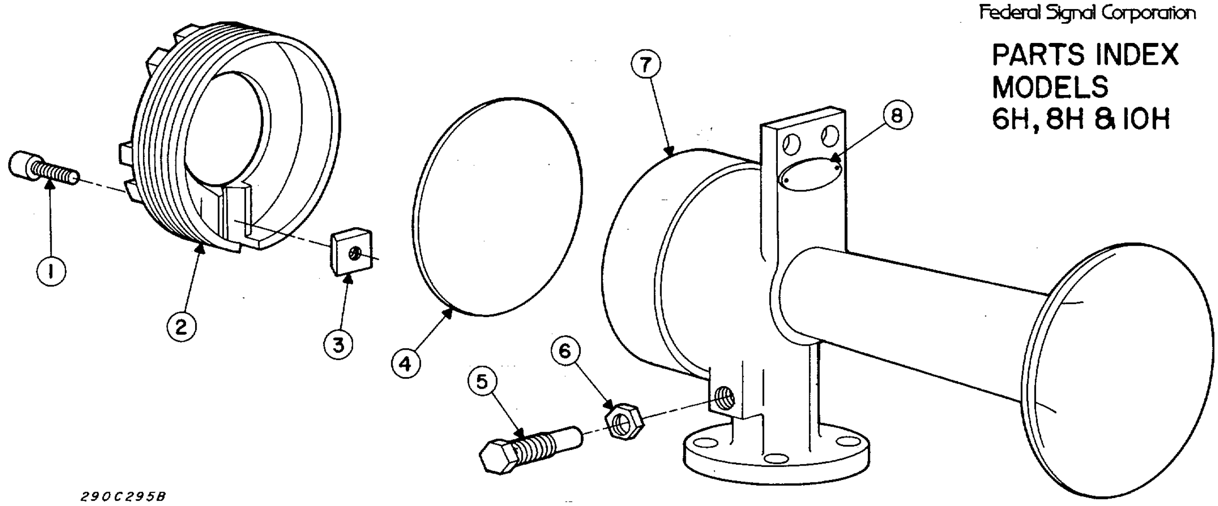
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PARTS INDEX MODELS 6H, 8H & 10H



290C295B

Models 6H, 8H, and 10H AIR HORNS

PPL 0074
PARTS LIST

AUGUST 1981

Index No.	Description	Part No.	Qty.
1	Screw, Nylok	8271A041	1
2	Ring, Retaining, Model 6H	8271C023	1 AR
	Ring, Retaining, Model 8H	8271D025	
	Ring, Retaining, Model 10H	8271D030	
3	Wedge, Locking	8271A037	1
4	Diaphragm, Model 6H	8271A077	2
	Diaphragm, Model 8H	8271A040	3
	Diaphragm, Model 10H	8271A060	4
5	Screw, Adjusting	8271A038	1
6	Nut, Jam	7057A048	1
7	Body, Horn, Model 6H	8271D022	1 AR
	Body, Horn, Model 8H	8271D024	
	Body, Horn, Model 10H	8271D026	
8	Nameplate	8146A026	1

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, description, and part number.

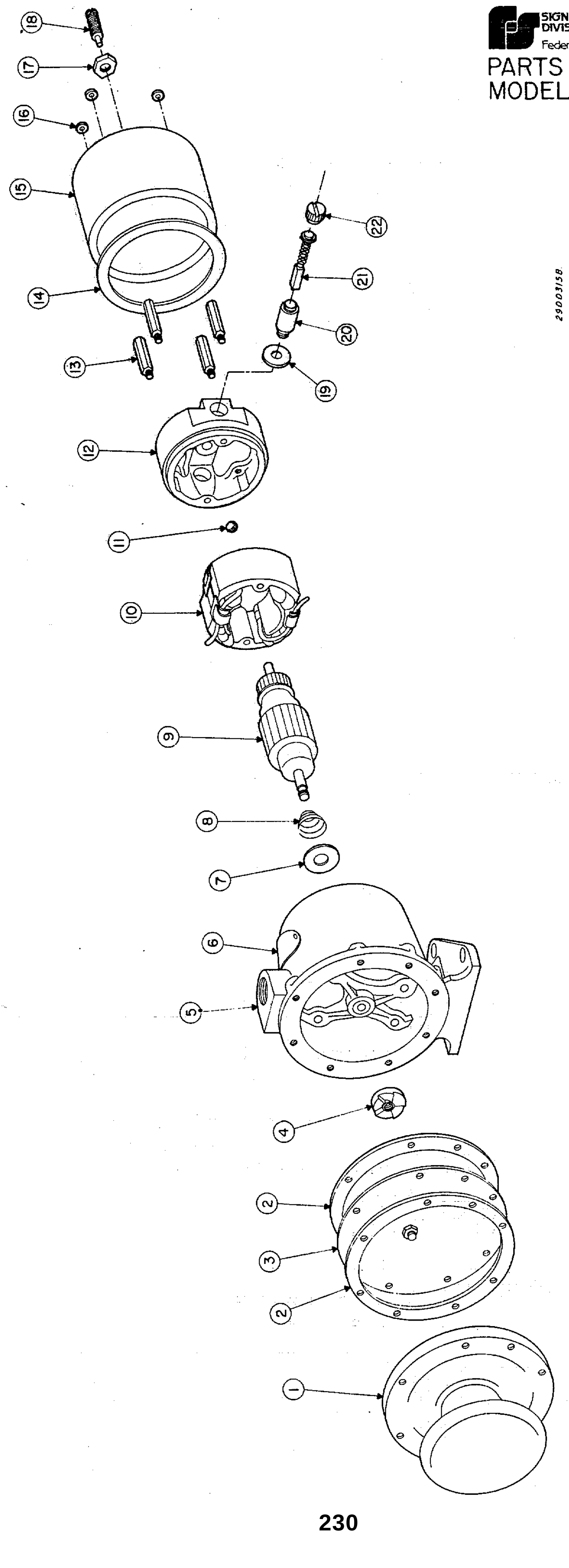
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PARTS INDEX
MODELS 20 & 60



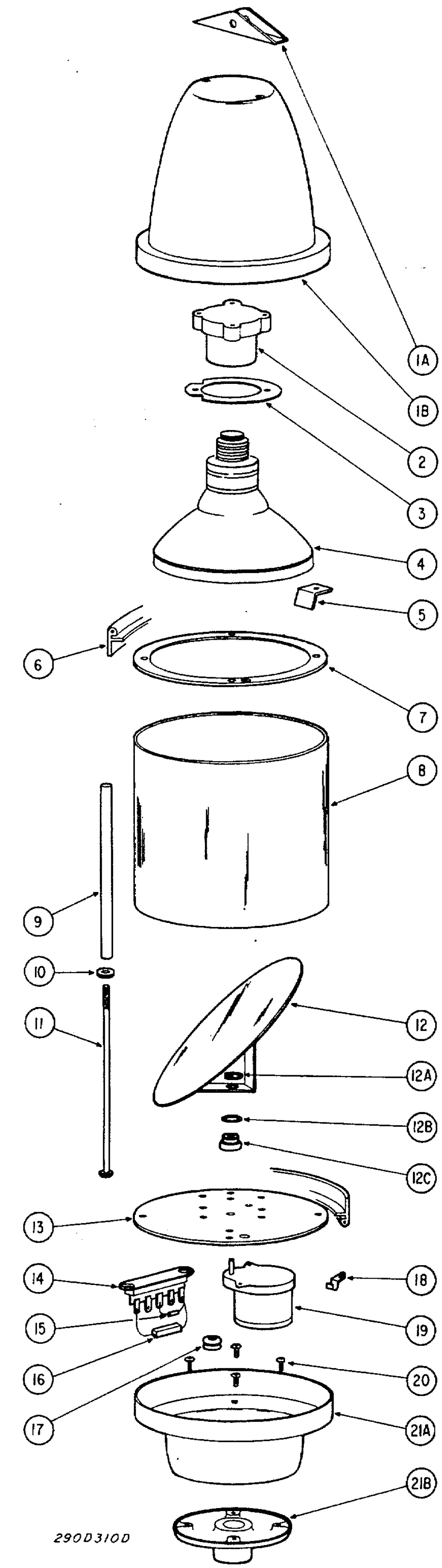
Item No.	Description	Part no.	Qty.
1	Projector	H7036-02	1
2	Gasket, Front	H6088	2
3	Diaphragm Assembly	H6089-0A	1
4	Ratchet	H6090-01	1
5	Housing, Center	8282B119	1
6	Nameplate	H1324	1
7	Washer	7072A138	1
8	Spring, Coil	H6534-01	1
9	Armature, 115V	8282B112-01	1 AR
	Armature, 250V	8282B112-02	
	Armature, 24V	8282B112-03	
10	Field, 115V	8282B113-01	1 AR
	Field, 250V	8282B113-02	
	Field, 24V	8282B113-03	
11	Ball Bearing	H6103-01	1
12	Support, Rear Motor	8282A117	1
13	Spacer	H6106-01	4
14	Gasket, Rubber	H6087	1
15	Cover, Rear	H6082-01	1
16	Washer	H6112	4
17	Locknut	7056A018	1
18	Screw, Adjusting	H6432	1
19	Washer, Fiber	7072A163	2
20	Holder, Brush	8282A039	2
21	Brush and Spring	8282A038	2
22	Cap, Brush Holder	8282A037	2

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Give model, voltage, description, and part number.

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PARTS INDEX MODELS: 27S AND 27C

LIGHT ASSEMBLIES, Models 27S, and 27C

PPL 0076
PARTS LIST

AUGUST 1981

Item No.	Description	Part No.	Qty.
1	Housing Assembly (consists of items 1A and 1B)	8241B081	1
1A	Clip, Suspension	8241A011	1
1B	Housing	8241C001	1
2	Socket	8241A013	1
3	Insulator	8241A101	1
4	Lamp, 120V, 75W	8241A014	1
5	Clip, Lamp	8241A020	4
6	Gasket	8241A012	2
7	Ring	8241B005	1
8	Lens, Tube, Green, Acrylic	8241B031-01	1 AR
	Lens, Tube, Red, Acrylic	8241B031-02	
	Lens, Tube, Clear, Acrylic	8241B031-03	
	Lens, Tube, Blue, Acrylic	8241B031-04	
	Lens, Tube, Magenta, Acrylic	8241B031-05	
	Lens, Tube, Amber, Acrylic	8241B031	
	Lens, Tube, Green, Polycarbonate	8241B031-11	
	Lens, Tube, Red, Polycarbonate	8241B031-12	
	Lens, Tube, Clear, Polycarbonate	8241B031-13	
	Lens, Tube, Blue, Polycarbonate	8241B031-14	
	Lens, Tube, Magenta, Polycarbonate	8241B031-15	
	Lens, Tube, Amber, Polycarbonate	8241B031-16	
9	Tubing	8241A035	1
10	Washer, Rubber	7072A133	4
11	Bolt, Carriage	7004A014-96	4
12	Mirror Assembly (includes items 12A, 12B, and 12C)	8241B034	1
12A	Ring, Retaining	8422A010	1
12B	Washer, Spring	8241A028	1
12C	Hub, Mirror Bracket	8444A090	1
13	Mounting Plate, Motor (Model 27S)	8241B004	1 AR
	Mounting Plate, Motor (Model 27C)	8241B004-01	
14	Board, Terminal (Model 27C Only)	8241A057	1
15	Diode, Zener (Model 27C Only)	8241A087	1
16	Resistor, 5,000 Ohm, 5W (Model 27C Only)	8241A088	1
17	Grommet	H7204	1
18	Clip, Cable (Model 27S)	8159A009	1 AR
	Clip, Cable (Model 27C)	8432A031	
19	Motor, 120V (Model 27S)	8241A030	1 AR
	Motor, 28V (Model 27C)	8241A051	
20	10-32 Screw, 3/8 Lg., Taptite	7011A059-06	4
21	Cover Assembly (consists of items 21A, and 21B)	8241B082	1
21A	Cover	8241C002	1
21B	Flange, Mounting	8241B017	1

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, voltage, description, and part number.

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PPL0077 MODEL 27X MECHANISM ASSY. AUGUST 1981
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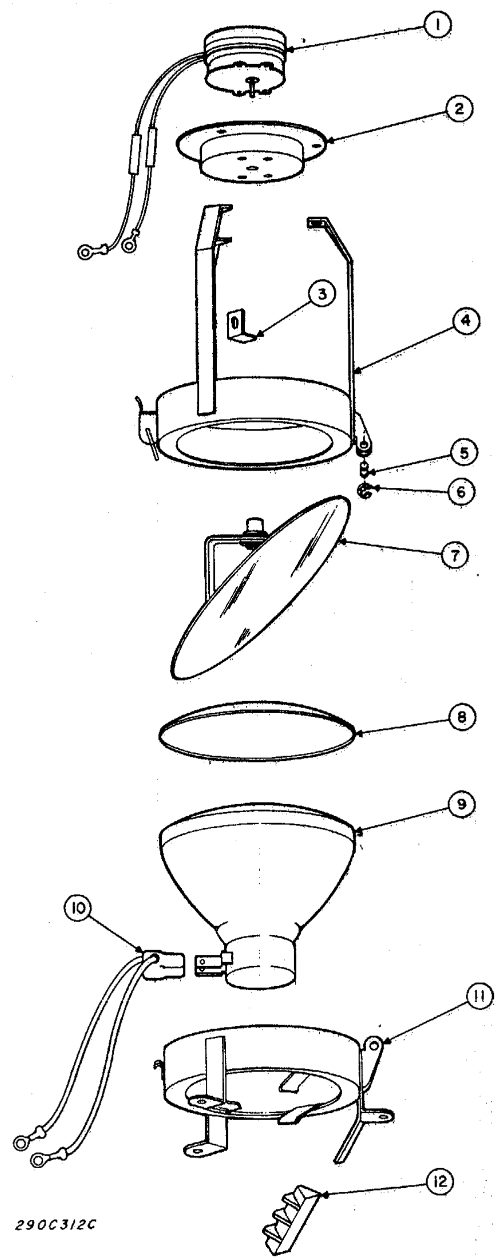
Index No.	Description	Part No.	Qty.
1	Motor Assembly Kit	8436A042A	1
2	Base, Motor	8436A010	1
3	Spring, Lens	8436A011	3
4	Upper Lamp Ring Assembly	8436B021	1
5	Pin, Hinge	8436A009	1
6	Ring, Retaining	8284A024	2
7	Mirror Assembly	8436A004	2
8	Roundel, Red	8340A059	1AR
	Roundel, Green	8340A060	
	Roundel, Amber	8340A087	
	Roundel, Blue	8340A088	
9	Lamp	8436A017	1
10	Connector Assembly	8436A015	1
11	Lower Lamp Ring Assembly	8436B020	1
12	Block, Terminal	8436A040	1
Not Shown	Fixture, EVA 230	8436C032	1AR
	Dome and Holder, Clear	8436C037	

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Give model, voltage, description and part number.

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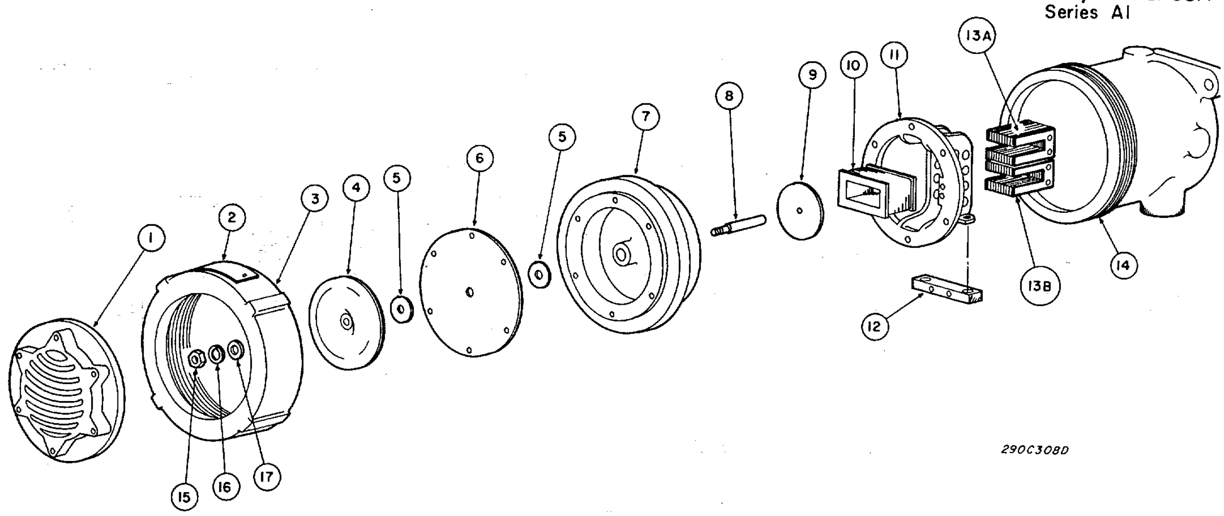
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PARTS INDEX
MODEL 27X

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PARTS INDEX
MODELS 31X, 32X & 33X
Series A1



PPL0078
PARTS LIST

MODELS 31X, 32X and 33X
EXPLOSION-PROOF HORNS
Series A1

AUGUST 1981

Index No.	Description	Part No.	Qty.
1	Grille (Model 31X only)	H6962-OB	1AR
2	Nameplate (all except 32-volt)	H5254	1AR
	Nameplate (32-volt horns only)	H5254-01	
3	Ring, Clamp	8242C008	1
4	Plate, Baffle	H5597	1
5	Washer	8068A053-01	2
6	Diaphragm	H5596	1
7	Support	8242B002K-03	1
8	Plunger	H6405	1
9	Armature	H5599	1
10	Coil (12-volt)	FC701	1AR
	Coil (24-volt)	FC703	
	Coil (32-volt)	FC704	
	Coil (48-volt)	FC705	
	Coil (120-volt)	FC706	
	Coil (240-volt)	FC707	
11	Frame	B10-19A	1
12	Block, Strain Relief	H6906	1
13A	Lamination	B10-15	28
13B	Lamination (end)	B10-15A	2
14	Housing	8242D005	1
15	Hex. Nut, 1/4-28	7057A000	1
16	Lockwasher, 1/4 Split	7074A015	1
17	Flat Washer, Steel, 5/8 x 17/64 x 1/16	7072A028	1
Not Shown	Projector (Models 32X and 33X only)	B30-2	1AR
	Cover, Projector (Model 32X only)	H5264-OF	1AR
	Cover, Projector (Model 33X only)	H5264-OG	1AR

DO NOT ORDER PARTS BY INDEX NUMBER. Give model, voltage, description and part number.

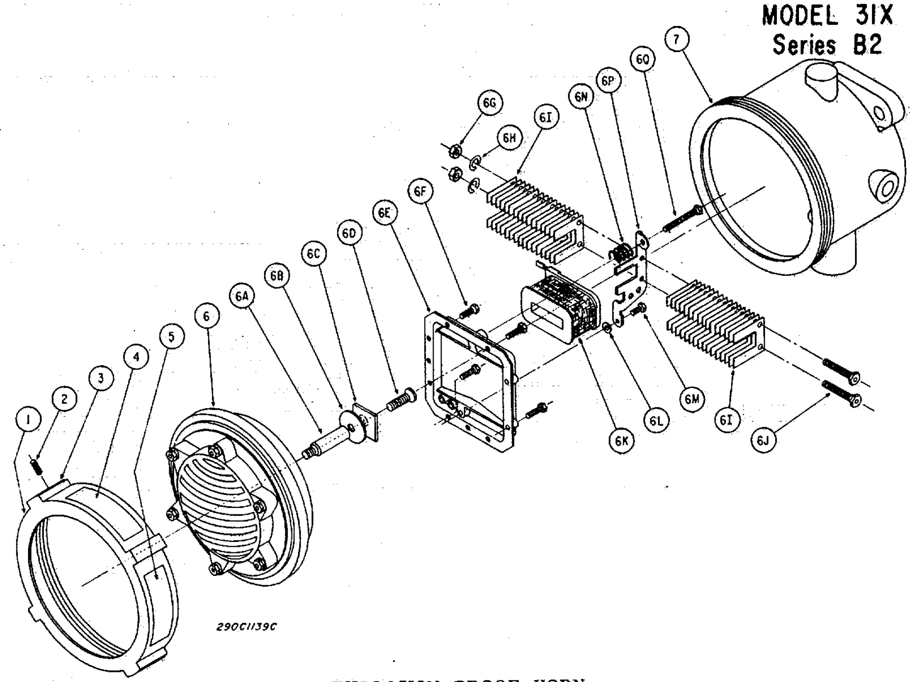
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PARTS INDEX
MODEL 31X
Series B2



EXPLOSION PROOF HORN
Model 31X , Series B2

PPL 0139
PARTS LIST

AUGUST 1981

Item No.	Description	Part No.	Qty.
1	Label, CAUTION, in English	8146A558	1
2	10-32 x 7/16 Screw, Hex Hd. , Socket	7008A020-07	1
3	Ring, Clamp	8242C007	1
4	Nameplate	H5254	1
5	Label, CAUTION, in French	8146A643	1
6	Power Plant Assembly 12V	8242D067-12	1 AR
	Power Plant Assembly 24V	8242D067-24	
	Power Plant Assembly 120V	8242D067-120	
	Power Plant Assembly 240V	8242D067-240	
	(Power Plant Assembly includes items 6A through 6Q) Listed seperately for replacement parts.		
6A	Plunger	H6405	1
6B	Washer	7072A188A	1
6C	Armature	8435A018	1
6D	10-32 x 5/8 Screw, Phl. Hd.	7000A252-10	1
6E	Frame, Horn	8435D517	1
6F	6-32 x 5/8 Screw, Taptite, Hex Hd.	7011A028-10	4
6G	8-32 Locknut, Two-Way	7065A024	2
6H	#8 Lockwasher, Heavy Helical	7074A007	2
6I	Laminations (16 on each side)	8435A013-OR	32
6J	8-32 x 5-3/4 Screw, Special, Torx	7000A173-90	2
6K	Coil, 12 V	FC 1502	1 AR
	Coil, 24V	FC 1503	
	Coil, 120V	FC 1504	
	Coil, 240V	FC 1506	
6L	Washer	7072A119	1
6M	10-32 x 1/2 Screw, Pan Hd. , Thd. Frm.	7011A107-08	1
6N	Spring, Horn	8435A012	1
6P	Support, Coil	8435B529	1
6Q	10-32 x 1-1/8 Screw, Hex Hd. , Type TT	7011A106-18	1
7	Housing	8242C006	1

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, series, voltage, description, and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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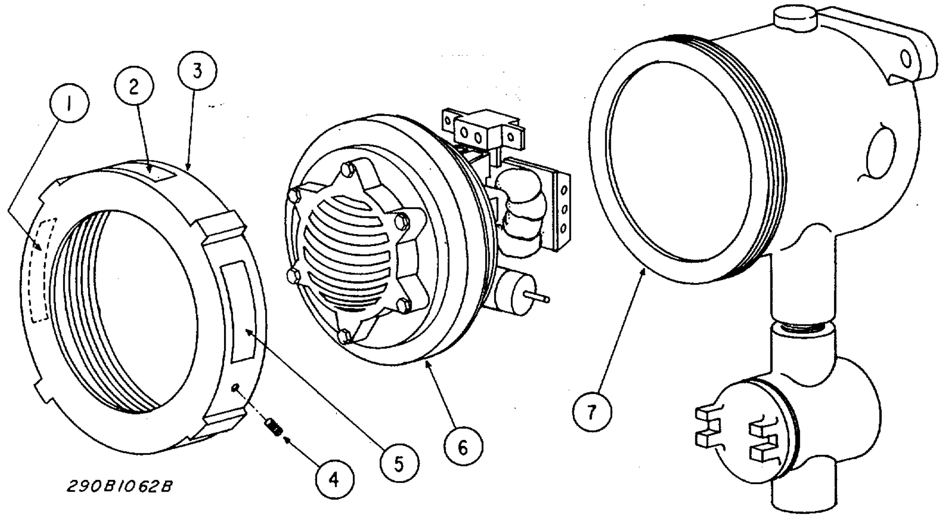
PARTS INDEX MODEL 41X

Series A1

6, 12, 24, 32, AND 48V

Series A2

125, AND 250VDC



EXPLOSION PROOF HORN

Models : 41X, Series A1, 6V - 12V - 24V - 32V - 48V
41X, Series A2. 125VDC - 250VDC

PPL 0126
PARTS LIST

AUGUST 1981

Item No.	Description	Part No.	Qty.
1	Warning Label, in English	8146A558	1
2	Nameplate	H5254	1
3	Ring, Housing	8242C007	1
4	10-32 x 7/16 Set Screw, Allen Hd.	7008A020-07	1
5	Warning Label, in French	8146A643	1
6	Power Plant Assembly, 6V	8242D023-006	1 AR
	Power Plant Assembly, 12V	8242D023-012	
	Power Plant Assembly, 24V	8242D023-024	
	Power Plant Assembly, 32V	8242D023-032	
	Power Plant Assembly, 48V	8242D023-048	
	Power Plant Assembly, 125V	8242D023-125	
	Power Plant Assembly, 250V	8242D023-150	
7	Housing, Nipple and Conduit Assembly	8242B025	1

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, series, voltage, description , and part number.

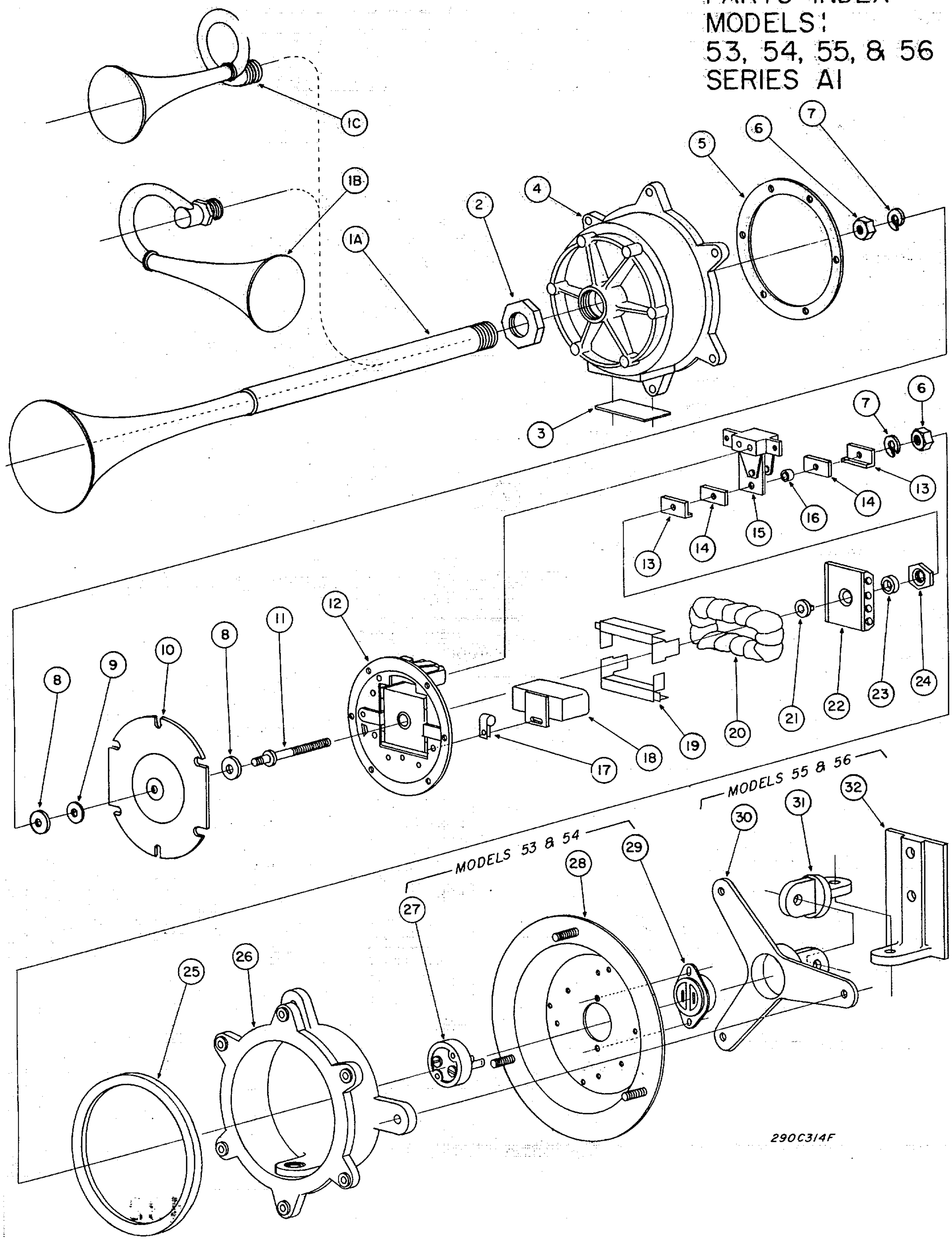
Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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PARTS INDEX MODELS: 53, 54, 55, & 56 SERIES A1



Item No.	Description			Part No.	Qty.
1A	Projector, Gray Hammertone			8283C071-OG	1AR
1B	Projector, Coiled, Gray Hammertone			H7090-01G	
	Projector, Coiled, Navy Gray			H7090-01A	
1C	Projector, Coiled, Gray Hammertone			8233C007-OG	
	Projector, Coiled, Red			8233C007-OR	
2	15/16-20 Locknut, Octagon			H6688	1
3	Nameplate				
	Models 53, 54, & 56 (all voltages)			H5552-01	1AR
	Modles 55-12, -24, -32, -48, & -56				
	Model 55-120			H5552-02	
	Model 55-220, -230, -240, & -250			H5552	
4	Cover, Housing			8233C049	1
5	Gasket, Diaphragm			8234A008-01	1
6/11	Diaphragm & Armature Shaft Assembly			8283A241	1
	individual parts				
6	1/4-32 Nut, Hex			7059A021	2
7	Lockwasher, Split			7074A015	2
8	Washer, Stainless Steel			H5705	2
9	Washer, Fiber			7072A144	1
10	Diaphragm			8283A232	1
11	Shaft, Armature			H7089	1
12	Power Plant Base & Coil Clip Assembly			8233A028	1
13	Washer, Angle			H5761-15	2
14	Insulator			H5761-14-OA	2
15	Contact Assembly			8233A021	1
16	Insulator, Tubular			H5761-13	1
17	Clamp, Strain Relief			8233A019	1
		Used On Models			
18	Condensor	53*32V	54*32V	H6160	1AR
		55*32V	56*32V		
		54*36V	56*36V		
	Condensor	56*40V	54*48V	H7900	
		56*48V	54*60V		
		56*60V	54*64V		
		54*72V	56*72V		
		53*120V	55*120V		
	Condensor	53*208V	53*240V	8233A080	
		55*240V	55*250V		
	Condensor	56*16V	53*24V	8351A018	
		54*24V	55*24V		
		56*24V	55*32V		
		53*48V	55*48V		
		53*57V	55*57V		
	Condensor	54*125V	56*125V	8233A080	
		56*150V			
	Condensor	54*250V	56*250V	8233A080	
		56*300V			
19	Insulator			H7999-02	1
		Voltage	Used On		
20	Coil	6	54, 56	FC450	1AR
	Coil	12	54, 56	FC451	
	Coil	16	56	FC452	
	Coil	24	53, 55	FC452	
	Coil	24	54, 56	FC453	
	Coil	32, 48, 57	53, 55	FC454	
	Coil	32, 36, 40	54, 56	FC456-01	
	Coil	40	56	FC456-02	
	Coil	48	54, 56	FC455	
	Coil	60, 64	54, 56	FC451-01	
	Coil	72	54, 56	FC459-03	
	Coil	125	54, 56	FC459	
	Coil	120	53, 55	FC456	
	Coil	120, 150	56	FC454-01	
	Coil	208	53	FC457	
	Coil	240, 250	53, 55	FC458	
	Coil	250	54, 56	FC458	
	Coil	300	56	FC455-1	
21	Nut, Armature Adjustment			H8014	1
22	Armature Assembly			8351A034	1
23	Bushing, Armature			8233A030	1
24	Washer, Armature Adjustment			8233A029	1
25	Gasket			H5507	1

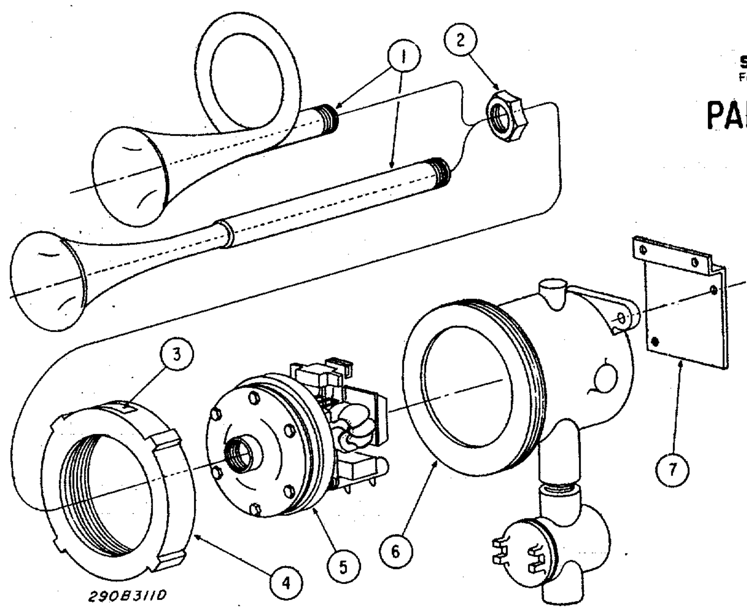
Item No.	Description			Part No.	Qty.
26	Housing			H5359-OA	1
27	Plug, Male (Models 53, and 54)			8068A061	1AR
28	Plate, Resilient (Models 53, and 54)			8233A004-OA	1AR
29	Plug, Female (Models 53 and 54)			8068A087	1AR
30	Bracket, Housing (Models 55 and 56)				
	Gray Hammertone			H5752-OG	1AR
	Red			H5752-OR	
31	Swivel (Models 55 and 56)				
	Gray Hammertone			8233A054-OG	1AR
	Red			8233A054-OR	
32	Bracket (Models 55 and 56)				
	Gray Hammertone			H5750-OG	1AR
	Red			H5750-OR	
Not Shown	Swivel Bracket Kit (includes items 31 and 32)			8233A046	1AR
	Bulkhead Mounting Kit			8233A036	1AR
		Used On Models			
	Resistor	56*6V	56*12V	8228A022	1AR
	Resistor	56*16V		8351A070	
	Resistior	53*24V	55*24V	8233A071	
		54*32V	56*32V		
		54*36V	56*36V		
		54*72V	56*72V		
	Resistor	54*24V	56*24V	8351A032	
		53*32V			
	Resistor	54*48V	56*48V	8233A071	
	Resisitor	54*125V	56*125V	8233A020	
		56*150V			
	Resistor	53*208V	53*240V	8233A018	
		55*240V	55*250V		
	Resistor	54*250V	56*250V	8233A077A	
		56*300V			
	Power Plant Assembly VAC				
		24VAC		H5506-01	1AR
		32VAC		H5506-02	
		48, & 57VAC		H5506-03	
		120VAC		H5506-04	
		208VAC		H5506-05	
		240VAC		H5506-06	
	Power Plant Assembly VDC				
		6VDC		H5506-07	
		12VDC		H5506-08	
		24VDC		H5506-09	
		32, & 36VDC		H5506-10	
		40VDC		H5506-17	
		48VDC		H5506-11	
		60VDC		H5506-12	
		72VDC		H5506-13	
		125VDC		H5506-14	
		150VDC		H5506-15	
		250VDC		H5506-16	

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description, and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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PARTS INDEX MODELS 55X and 56X

Models : 55X 24V - 120V - 240V
56X 12V - 24V - 32V - 125V - 250V

PPL 0081
PARTS LIST

AUGUST 1981

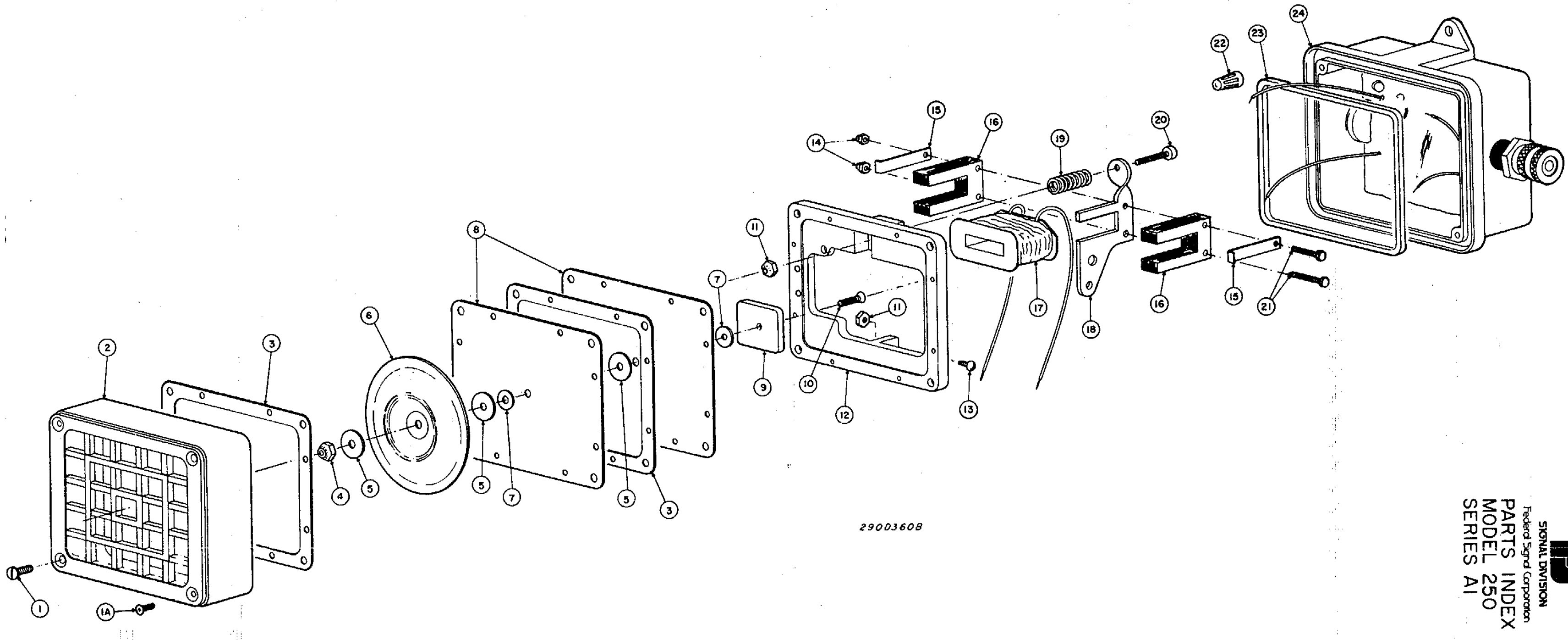
Item No.	Description		Part No.	Qty.
1	Projector, Straight		8283C071	1 AR
	Projector, Coiled		8233C007	
2	Locknut		H6688	1
3	Nameplate	55X 24V	H5254-01-01	1 AR
		55X 120V	H5254-36	
		55X 240V	H5254-37	
	Nameplate	56X 12V	H5254-01-02	
		56X 24V	H5254-01-03	
		56X 32V	H5254-01-09	
		56X 125V	H5254-01-04	
		56X 250V	H5254-01-05	
4	Ring, Housing		8242C007	1
5	Power Plant Assembly	55X 24V	8242D022-024	1 AR
		55X 120V	8242D022-120	
		55X 240V	8242D022-240	
	Power Plant Assembly	56X 12V	8242D049-012	
		56X 24V	8242D049-024	
		56X 32V	8242D049-032	
		56X 125V	8242D049-125	
		56X 250V	8242D049-250	
6	Housing, Nipple and Conduit Assembly		8242B025	1
7	Bracket, Resilient Mounting		8242B054	1 AR
Not Shown				
	Service Parts Kit (includes item 7 and mounting hardware)		8242A055	1 AR

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, voltage, description and part number.

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SIGNAL DIVISION
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PARTS INDEX
MODEL 250
SERIES A1

PARTS LIST

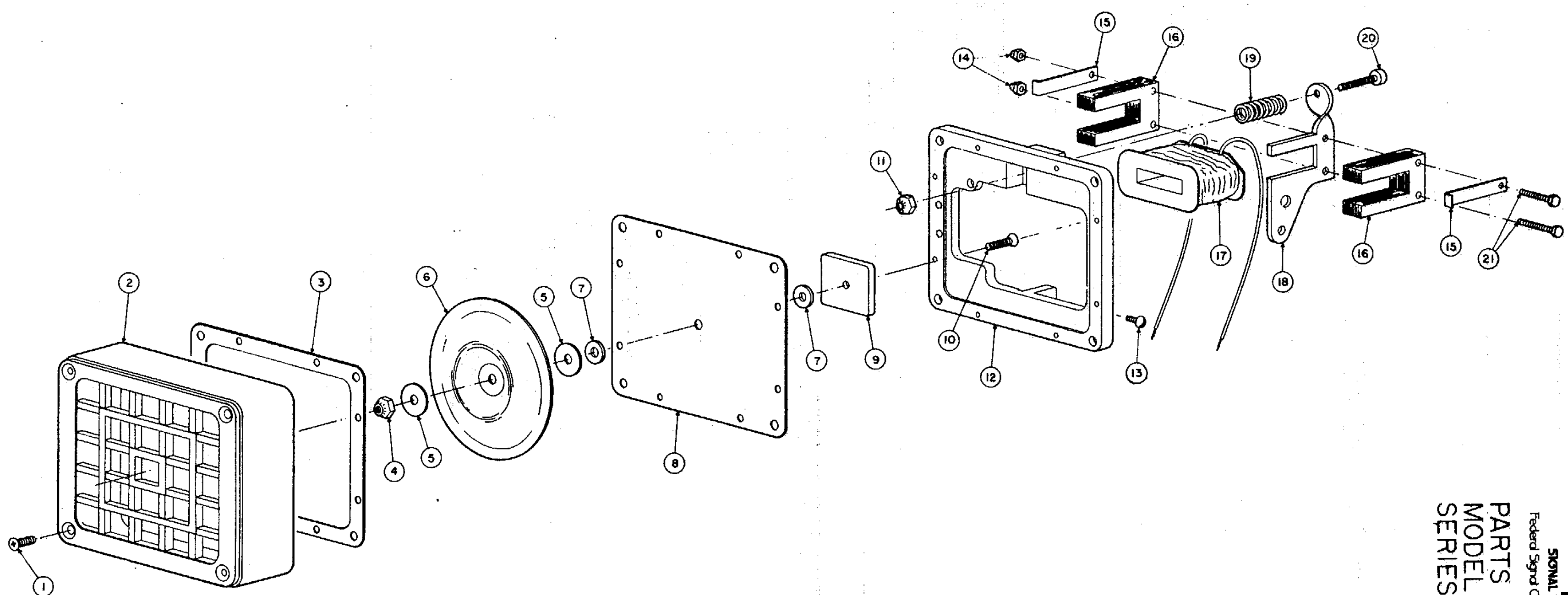
Index No.	Description	Part No.	Qty.
1	Screw, 8-32 x 1/2 Phillips Oval Hd.	7011A022-08	2
1A	Screw, #2 x 1/4 Drive	7005A001-04	2
2	Grille, Horn	8435C002-03	1
3	Gasket	8435B015	1
4	Nut, 10-32 Hex	7065A005	1
5	Washer, Flat	7072A012	3
6	Plate, Baffle	8435A019	1
7	Washer, Flat	7072A011	2
8	Diaphragm	8435B017	2
9	Armature	8435A018	1
10	Screw, 10-32 x 5/8 Flat Hd.	7000A252-10	1
11	Stop Nut, 10-32 Hex. Elastic	7058A008	2
12	Frame, Horn	8435C003	1
13	Screw, 10-32 x 5/8 Rd. Hd	7000A068-10	1
14	Stop Nut, 8-32 Hex. Elastic	7058A015	2
15	Retainer, Coil	8435A014	2
16	Laminations (32 per set)	8435A013	1 set
17	Coil (for 12-volt units)	FC1319	1
18	Support, Coil	8435A011	1
19	Spring, Horn	8435A012	1
20	Screw, 10-32 x 1-1/4 Cap. Allen	7002A020-20	1
21	Screw, 8-32 x 1-1/4 Hex. Hd.	7000A301-20	2
22	Connector, Wire	8287A154	2
23	Gasket	8435A104	1
24	PC Board Component and Housing Assy.	8535D009	1
Not Shown	Clip, Adjusting Screw	8435A060	1
	Diaphragm Assy. (consists of items 3 thru 10)	8535B005	1
	Frame Assy. (consists of items 11 thru 21)	8435B066	1
	Field Assy. (consists of items 14 thru 18 and 21)	8535A039	1

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX
MODEL 350
SERIES A1

Index No.	Description	Part No.	Qty.
1	Screw, 8-32 x 1/2 Phillips Oval Head	7011A022-08	2
2	Grille, Gray Hammertone	8435C002-03	1AR
	Grille, Red	8435C002-04	
	Grille, White	8435C002-05	
3	Gasket	8435B015	1
4	Stop Nut, 10-32 Hex. Elastic	7058A008	1
5	Washer, .196 x 5/8 x 1/32 Flat	7072A012	2
6	Plate, Baffle	8435A019	1
7	Washer, .196 x 1/2 x .050 Flat	7072A011	2
8	Diaphragm	8435B017	1
9	Armature	8435A018	1
10	Screw, 10-32 x 5/8 Phillips Flat Head	7000A252-10	1
11	Stop Nut, 10-32 Hex. Elastic	7058A008	2
12	Frame	8435C003	1
13	Screw, 10-32 x 5/8 Round Head	7000A068-10	1
14	Stop Nut, 8-32 Hex. Elastic	7058A015	2
15	Retainer, Coil	8435A014	2
16	Lamination	8435A013-OR	32
17	Coil, 6-volt	FC1300	1 AR
	Coil, 12-volt	FC1301	
	Coil, 18-volt	FC1335	
	Coil, 24-volt	FC1328	
	Coil, 32-volt	FC1331	
	Coil, 48-volt	FC1330	
	Coil, 120-volt	FC1332	
	Coil, 240-volt	FC1329	
18	Support, Coil	8435A011	1
19	Spring	8435A012	1
20	Cap Screw, 10-32 x 1-1/2 Allen	7002A020-20	1
21	Screw, 8-32 x 1-1/4 Hex. Head	7000A301-20	1
Not Shown	Diaphragm Assy. (consists of items 4 thru 10)	8435B049-01	1
	Frame Assy. (consists of items 11 thru 21)	8435B066	1
	Field Assy. (consists of items 14 thru 18, and 21	8435A039	1

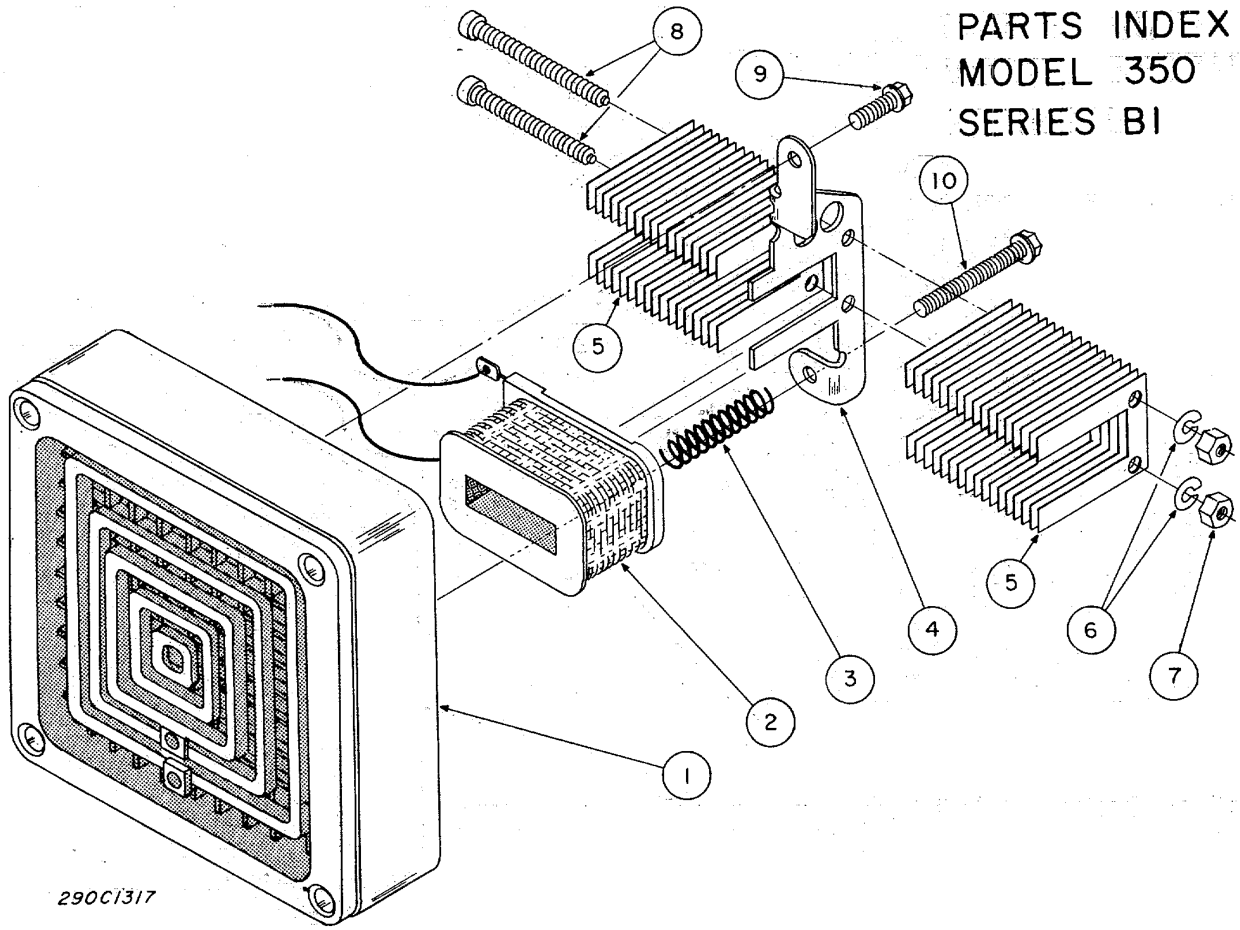
NOTE: All the parts shown above are used on Models 350, 351 and 352. Refer to Federal price sheet for prices of electrical boxes, wall plates, projectors and other accessories.

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.

Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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PARTS INDEX MODEL 350 SERIES B1

MODEL 350, SERIES B1
INDUSTRIAL HORN

PPL 0151
PARTS LIST

AUGUST 1981

Item No.	Description	Part No.	Qty.
1	Horn Assembly (gray)	8435A565	1 AR
	Horn Assembly (red)	8435A566	
2	Coil, 6 Volt, 2.0 Amp	FC 1501	1 AR
	Coil, 12 Volt, 0.9 Amp	FC 1509	
	Coil, 12 Volt, 1.8 Amp	FC 1502	
	Coil, 12 Volt, 2.8 Amp	FC 1510	
	Coil, 24 Volt, 0.9 Amp	FC 1503	
	Coil, 120 Volt, 0.18 Amp	* FC 1516	
	Coil, 240 Volt, 0.09 Amp	FC 1506	
3	Spring	8435A012	1
4	Support, Coil	8435B529	1
5	Laminations (17 on each side)	8435A013-OR	34
6	Lockwasher, Split	7074A007	2
7	8-32 Nut, Hex.	7065A024	2
8	8-32 x 1-3/8 Screw, Special Torax Flt. Fill. Hd. Plt. Pt.	7000A173-90	2
9	10-32 x 1/2 Screw, Hex. Wsh. Hd.	7011A107-08	1
10	10-32 x 1-1/8 Screw, Hex. Wsh. Hd.	7011A106-18	1

* NOTE : Part No. FC 1516 replaces Part No. FC 1504

When ordering any replacement part also order Instruction Sheet Part No. 256A452

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, series, voltage, description, and part number.

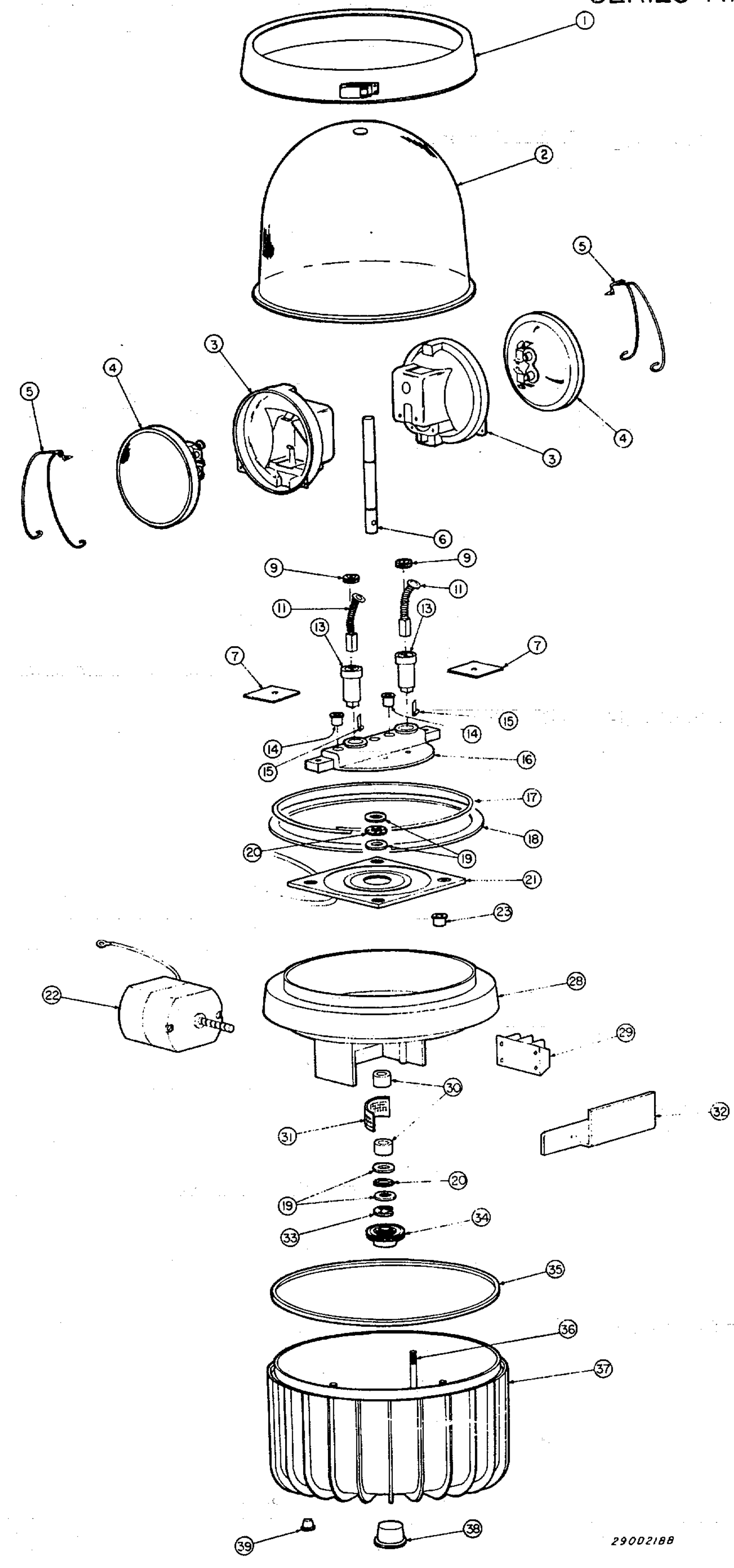
Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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Federal Signal C

PARTS IND
MODEL 372
SERIES A1



Item No.	Description	Part Number	Qty.
1	Retaining Band Assembly	8449C017	1 AR
2a	Glass Domes :		
	Aviation Red	8442C002	
	Aviation Yellow	8442C002-01	
	Aviation White (clear)		1 AR
	Pale Blue	8442C002-03	
	Aviation Green	8442C002-04	
2b	Acrylic Domes		
	Red	8449C005-01	
	Blue	8449C005-02	
	Green	8449C005-03	1 AR
	Amber	8449C005-04	
	Clear	8449C005-05	
2c	Polycarbonate Domes :		
	Red	8449C005-11	
	Blue	8449C005-12	
	Green	8449C005-13	1 AR
	Amber	8449C005-14	
	Clear	8449C005-15	
2c	Split Domes :		
	Blue and Clear	8449C048-01	
	Amber and Red	8449C048-02	
	Red and Blue	8449C048-03	
	Amber and Blue	8449C048-04	
	Red and Clear	8449C048-05	1 AR
	Amber and Clear	8449C048-06	
	Red and Green	8449C048-07	
	Amber and Green	8449C048-08	
	Green and Clear	8449C048-09	
3	Lamp Holder	8449A055	2
4	Lamp (28V, 32V, 36V lights)	8107A027	2 AR
	Lamp (64V, to 75V lights)	8107A055	
5	Lamp Clamp Wire	8422B016	2
6	Shaft	8459A039	1
7	Insulator (32V, 36V lights only)	8459A040	2
9	Brush Cap	8442A026	2
11	Brush and Spring	8442A028	2
13	Brush Holder	8442A025	2
14	Snap Bushing	8459A028	2
15	Brush Holder Clip	8442A027	2

Item No.	Description	Part Number	Qty.
16	Lamp Holder Support	8459C003	1
17	Spacer Ring for Plastic Dome	8449A040	1 AR
18	Gasket for Glass Dome	8449C006-01	1 AR
	Gasket for Plastic Dome	8449C006-02	
19	Thrust Washer	8449A021	4
20	Thrust Retainer	8449A022	2
21	Slip Ring Assembly	8459A012	1
22	Motor (28V, 32V, 36V lights)	8422B111-09	1 AR
	Motor (64V to 75V lights)	8422B111-10	
23	Snap Bushing	8449A010	1
28	Base Plate	8459D002-02	1
29	Terminal Block	8442A032	1
30	Sleeve Bearing	8240A034-01	2
31	Felt Oil Pad	8449A011	1
32	Gear Box Cover	8459B008	1
33	Retaining Ring	8422A010	2
34	Worm Gear Clutch Assembly	8422A114	1
35	Gasket	8449C007	1
36	Stud	8459A019	3
37	Housing (shown)	8449D002	1 AR
	Housing for Shock Mounting	8459C081	
38	Tapered Plug	8449A016	1
39	Tubing Plug	8449A014	3
Not Shown :			
	Resistor, 5 ohm, 25 watt (32 - 36 VDC only)	8449A045	2 AR
	Capacitor , 0.2 uf (64 - 75 VDC lights only)	8170A155	2 AR
	Shock Mounting Conversion Kit	8459A079	AR

DO NOT ORDER PARTS BY ITEM NUMBER.
Give model, voltage, description, and part number.

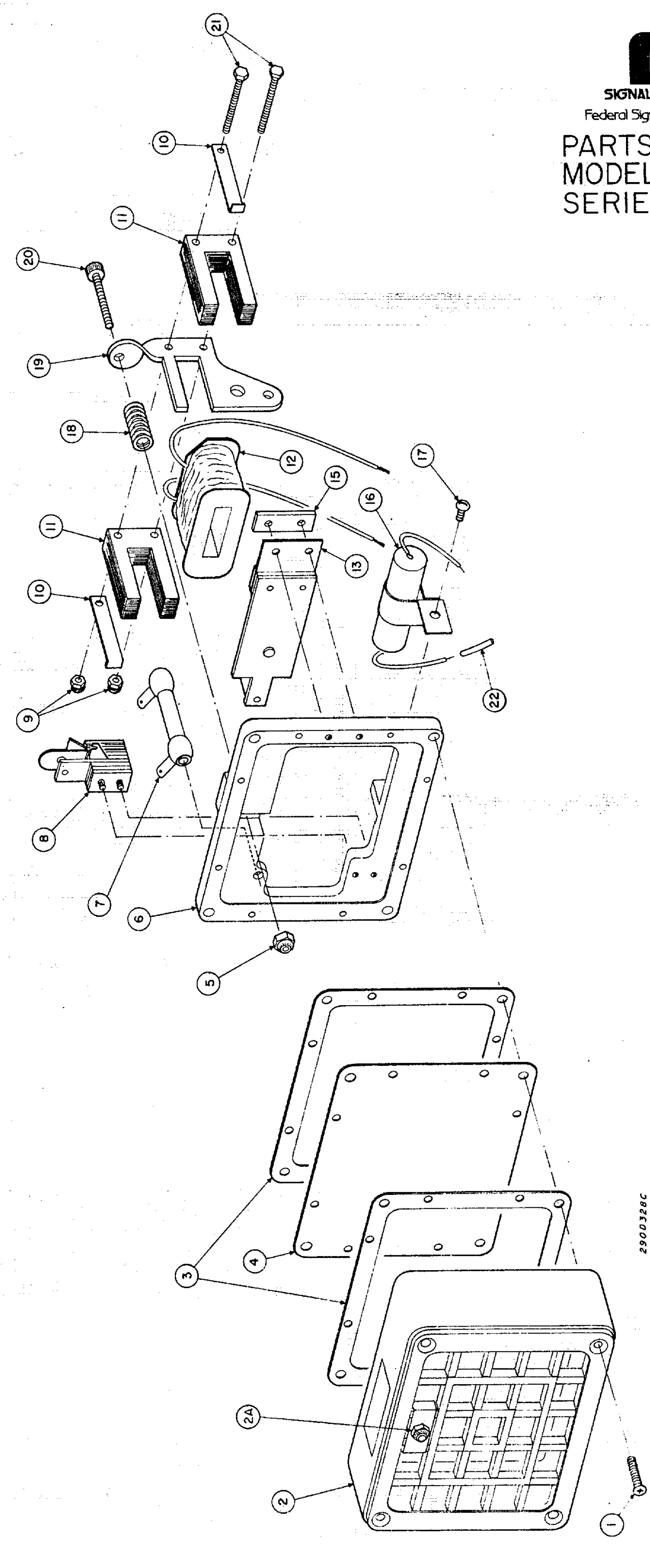
Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

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PARTS INDEX
MODEL 450
SERIES A1



Index No.	Description	Part No.	Qty.
1	Screw, 8-32 x 1/2 Phillips Oval Head	7011A022-08	2
2	Grille, Gray Hammertone	8435C002-03	1AR
	Grille, Red	8435C002-04	
	Grille, White	8435C002-05	
2A	Volume Control Clip Assy.	8435A101-01	1
3	Gasket	8435B015	2
4	Diaphragm Assy.	8435B037-01	1
5	Stop Nut, 10-32 Hex. Elastic	7058A008	2
6	Frame	8435C003-01	1
7	Resistor 10K used on 125,250, & 300V Models	8435A307	1
8	Contact Assy.	8435A032	1
9	Stop Nut, 8-32 Hex. Elastic	7058A015	2
10	Retainer, Coil	8435A014	2
11	Lamination	8435A013-OR	32
12	Coil, 6VDC	FC1400	1AR
	Coil, 6, 12VDC	FC1401	
	Coil, 12VDC	FC1402	
	Coil, 9,24,28VDC	FC1403	
	Coil, 20,24,48VDC	FC1405	
	Coil, 115,120,125VDC	FC1406	
	Coil, 250VDC	FC1407	
	Coil, 12,32VDC	FC1410	
	Coil, 24,36,40VDC	FC1411	
	Coil, 12, 18, 20VDC	FC1412	
	Coil, 12VDC	FC1413	
	Coil, 100VDC	FC1414	
	Coil, 60VDC	FC1417	
	Coil, 48VDC	FC1419	
	Coil, 75VDC	FC1421	
	Coil, 80VDC	FC1422	
	Coil, 300VDC	FC1423	
13	Armature Assy.	8435A042	1
15	Clamp, Armature	8435A025	1
16	Capacitor and Bracket (32,36,40,48VDC)	8435A062-01	1AR
	Capacitor and Bracket (48,60,75,80,100,115,120,125VDC)	8435A062-02	
	Capacitor and Bracket (250,300VDC)	8435A062-03	
	Capacitor and Bracket (6,9,12,18,20,21.5,24,28VDC)	8435A062-04	
17	Cap Screw, 10-32 x 5/8 Hex. Head	7002A032-10	1
18	Spring	8435A012	1
19	Support, Coil	8435A011	1
20	Cap Screw, 10-32 x 1-1/2 Allen	7002A020-20	1
21	Screw, 8-32 x 1-1/4 Hex. Head	7000A301-20	2
22	Tube, Insulation	8435A069	1
Not Shown	Field Assy. (consists of items 9,10,11,12, 19 and 21)	8435A063	1
	Horn Frame Assy. (consists of items 5,6, and 8 thru 21)	8435B080	1

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.

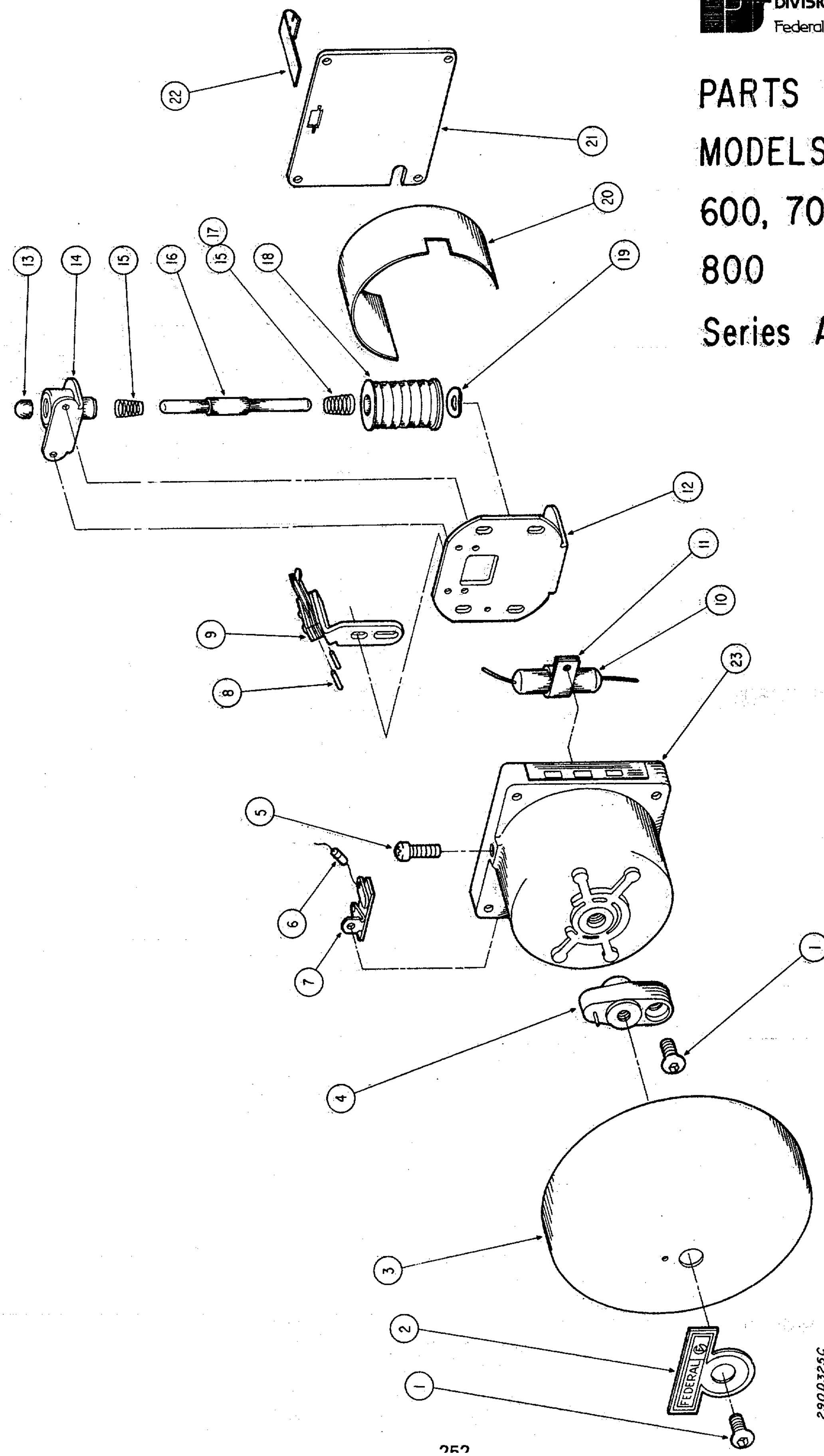
Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.

Federal Signal Corporation
Signal Division
136th and Western Avenue
Blue Island, Illinois 60406

Printed in U.S.A.

SIGNAL DIVISION
Federal Signal Corporation

PARTS INDEX MODELS: 500, 600, 700, and 800 Series A1



MODELS : 500, 600, 700, and 800

Item No.	Description	Part No.	MODEL 500 VOLTAGE 6	12	24	120	240	440	MODEL 600 VOLTAGE 6	12	24	32	48	64	125	250	MODEL 700 VOLTAGE 6	12	24	120	240	MODEL 800 VOLTAGE 6	12	24	32	48	125	250	SEE NOTE
1	Screw	7017A007-07	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	1
2	Nameplate, 4" Gong	8146A276	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	
	Nameplate, 6" Gong	8146A277	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	
	Nameplate, 10" Gong	8146A278	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	
3	Gong (see standard parts list)		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
4	Adapter, 6" Gong	8468A055	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	
	Adapter, 10" Gong	8468A056	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	
5	Screw, (part of volume control kit)	8468A121	X	X	X	X	X	X																					
6	Diode (Model 500 & 600 Polarized Units Only	8241A069	X	X	X	X	X	X	X	X	X	X	X	X	X	X													
7	Terminal Strip (Polarized Units Only)	229A125	X	X	X	X	X	X																					
	Terminal Strip (Polarized Units Only)	8444A029-01							X	X	X	X	X	X	X	X													
8	Sleeve	8468A099														X													
9	Contact Assembly (Non-Polarized Units)	8468A060-02							AR	AR	AR	AR	AR	AR	AR	AR													
	Contact Assembly (Polarized Units)	8468A060-01							AR	AR	AR	AR	AR	AR	AR	AR													
10	Capacitor	8435A035-01							X																				
	Capacitor	8435A035-03											X	X	X	X													
	Capacitor	8435A035-05								AR	AR	X																	
	Capacitor	8435A035-06							X																				
11	Bracket, Capacitor	8468A073							X	X	X	X	X	X	X	X													
12	Frame & Bearing Assembly	8468A147	X	X	X	X	X	X	X	X	X	X	X	X	X	X													
	Frame & Bearing Assembly	8468A148															X	X	X	X	X	X	X	X	X	X	X	X	
13	Tip Rubber (Polarizee Units Only)	8468A120	X	X	X	X	X	X																					
14	Rear Bracket & Bearing Assembly	8468A146	X	X	X	X	X	X																					
	Rear Bracket & Bearing Assembly	8468A150							X	X	X	X	X	X	X	X													
	Rear Bracket & Bearing Assembly	8468A149															X	X	X	X	X	X	X	X	X	X	X	X	
15	Spring	8468A017	X	X	X	X	X	X	X	X	X	X	X	X	X	X													
16	Armature Assembly	8468A042	X	X	X	X	X	X																					
	Armature Assembly	8468A038							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
17	Spring Armature	8468A063															X	X	X	X	X	X	X	X	X	X	X	X	
18	Coil Assembly	8468B075-01	X																										
		8468B075-02		X						.4																			2
		8468B075-03			X																								
		8468B075-04				X																							
		8468B075-05					X																						
		8468B075-06															X												
		8468B075-07																X											
		8468B075-08																	X										
		8468B075-09																		X									
		8468B075-10																			X								
		8468B075-11																				X							
		8468B075-12																					AR						
		8468B075-13																						X					
		8468B075-14																								X			
		8468B075-15																									X		
		8468B075-16																										X	
		8468B075-19						X																					
		8468B075-24																							X				
		8468B075-26								.25																			2
		8468B075-28																AR											
	Coil Assembly	8468B076-01							X																				
		8468B076-02								.7																			2
		8468B076-02								.8																			2
		8468B076-03									.4																		2
		8468B076-04											X																
		8468B076-05													X														
		8468B076-06														X													
		8468B076-07										X																	
		8468B076-08												X															
		8468B076-12									.15																		2
19	Washer, Spring	7074A053A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
20	Insulator	8468A074							X	X	X	X	X	X	X	X													
21	Cover	8468A054	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
22	Spring 9 (Part of volume control kit)	8468B013	X	X	X	X	X	X																					
23	Bell Housimg	8468D004	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Not Shown																													
	Pad, Armature (Replaces item 15)	8468A062															X	X	X	X	X	X	X	X	X	X	X	X	
	Kit, Volume Control	8468A066	X	X	X	2	X	X																					
	Magnet (Located on top of item 18)	8468A022	X	X	X	X	X	X																					

DO NOT ORDER PARTS BY INDEX NUMBER.
Give model, voltage, description and part number.
Refer to PARTS LIST (Part No. 1001) for prices of parts.

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NOTES :
1. One item 1 screw required with 4" gong, and two required with 6 and 10" gongs.
2. Decimal numbers indicate operating current. Use this number as part of the description when ordering replacement coil assemblies.
3. AR (as required) indicates that type of bell configuration will determine which part will be ordered.
4. Refer to Federal price sheet for prices of gong assemblies, entire mechanism assemblies, electrical boxes, wall plates, projectors, grille guards and other accessories.

DOMES

MODEL 11, 14, 044
8-3/8" DIA / 5-3/4" HGT.

SOLID

Part No.	Color
8422C002-01	RED
-02	BLUE
-03	GREEN
-04	AMBER
-05	CLEAR
-06	RED/GREEN

SPLIT

Part No.	Color
8422C160-01	RED/AMBER
-02	RED/BLUE
-03	AMBER/BLUE
-04	CLEAR/RED
-05	BLUE/CLEAR

MODEL 12 (TWINSONIC)
82"W, 18½"L, 5-7/16" HGT.

SOLID

Part No.	Color
8470D004-11	RED
-12	BLUE
-13	GREEN
-14	AMBER
-15	CLEAR

CTS

Part No.	Color
8470D104	RED (AMBER INSERT)
8470D104-01	BLUE " “

MODEL 15
6-1/8" DIA., 4-7/8" HGT.

SOLID

Part No.	Color
8441C192-01	RED
-02	BLUE
-04	AMBER
-05	CLEAR

MODEL
17, 17A, 17D, 173A, 173D, 174, 175, 176, 312, 371, 372
8-3/8"DIA., 6-1/8" HGT.

GLASS SOLID

Part No.	Color
8442C002	RED
-01	AMBER
-03	BLUE

LEXAN SOLID

Part No.	Color
8449C005-11	RED
-12	BLUE
-13	GREEN
-14	AMBER
-15	CLEAR
-16	MAGENTA

SPLIT, (LEXAN)
8-3/8"DIA., 6-1/8" HGT.

8449C048-01	BLUE/CLEAR
-02	AMBER/RED
-03	RED/BLUE
-04	AMBER/BLUE
-05	RED/CLEAR
-06	AMBER/CLEAR

MODEL 18 (GLASS)
6" DIA.

H7843-01	RED
-02	BLUE
-03	CLEAR

MODEL 27S, 27C
5-1/8" HGT., 6" DIA

8241B031	AMBER
-01	GREEN
-02	RED
-03	CLEAR
-04	BLUE
-05	MAGENTA

MODEL 27X
4-3/4" DIA

8340A059	RED
060	GREEN
087	AMBER
088	BLUE

MODEL 121, 121A, 121S
5" DIA., 5½ HGT.

SOLID

8444B019-01	RED
-02	AMBER
-03	BLUE
-04	CLEAR
-05	GREEN

SPLIT

8444B097-01	RED/AMBER
-02	RED/'BLUE
-03	AMBER/BLUE
-04	RED/CLEAR
-05	RED/GREEN

MODEL: 184, CJ184, CJ284

10 3/4'. , .DIA., 5 3/4" HGT

SOLID		SPLIT	
8434D101-O1	RED	8434D102-01	RED/BLUE
-02	BLUE	-03	RED/CLEAR
-'03	GREEN	-04	RED/AMBER

BR-:2S (GLASS)
4 ¼". DIA., 4 ½ '" HGT

8248C004	RED
-01	AMBER
-02	BLUE

FB-1, FB-2, FB-11, FB-12

SOLID		SPLIT	
8440D009H-05	RED	8440B213-05	BLUE/RED
-06	BLUE	-06	GREEN/RED
--07	GREEN		
-08	AMBER		
-09	CLEAR		

LL-4
7" DIA

8285A213-02	AMBER
-03	BLUE
-04	CLEAR
-05	'RED

LL-5
7 ¼" DIA

8287C222-01	RED
-02	AMBER
-03	BLUE
-04	CLEAR

VISABEAM

8441C192-05	CLEAR

<u>REPLACEMENT LAMPS</u>

FEDERAL P/N	GE P/N	VOLT	WATT	COLOR
8107A026	4412	12	35	CLEAR
8107A027	4505	24	50	CLEAR
8107A032	4516	6	30	CLEAR
8107A033	4416	12	30	CLEAR
8107A033-OG	4416G	12	30	GREEN
8107A035	4503	14	40	CLEAR
8107A038	4531	12	40	CLEAR
8107A039	4010	6	30	CLEAR
8107A041	309	24	.90 amp	CLEAR
8107A042	4416R	12	30	RED
8107A045	311	24	1.29 amp	CLEAR
8107A051	4478	12	60	CLEAR
8107A052	1073	12	1.80	CLEAR
8107A054	4595	12	100	CLEAR
8107A055	75 PAR/RS	75	75	CLEAR
8107A057	4416B	12	30	BLUE
8107A059	4416A	12	30	AMBER
8107A060	4505R	28	50	RED
8107A065	4594	24	100	CLEAR
8107A066	4464	12	60	CLEAR
8107A068	4464R	12	60	RED
8107A069	4436	12	35	CLEAR
8107A072	4002R	12	50	RED
8107A073	150 PAR/46/3	175	150	CLEAR
8107A074	4401	12	37.5	CLEAR
8107A076	93	12	1.04	CLEAR
8107A077	4001R	12	37.5	RED
8107A085	1893	14	.33	CLEAR
8107A086A	4700	13	100	CLEAR
8107A087A	7400	12	35	CLEAR RIBBED
8107A093A	4509X	12	100	CLEAR
8107A094A	Q7400 HAL.	12	55	CLEAR
8107A102A	4414	12		CLEAR
8107A104A	4454	12		CLEAR
8107A095A	1157	12	4.1	CLEAR
8241A014	75 PAR/SP	120	75	CLEAR
8436A017	75 PAR/3SP	120	75	CLEAR
8440A033	1507	12	3.00 AMP	CLEAR
8440A034	1503	6	6.53 AMP	CLEAR
8440A107	1183	6	5.26 AMP	CLEAR
8440A108	1185	12	3.00 AMP	CLEAR
8440A265A	HALOGEN QUARTZ	12		CLEAR
8441A032	1015	6	9.5 AMP	CLEAR
8441A033	1019	12	4.75	CLEAR
8442A0 3 9	200 PAR/46/	125	200	CLEAR
8444A071	25 T'DC	120	25	CLEAR

MOUNTING AND ACCESSORY KITS

MODEL 11

VISABAR

11HK*3	Hook-on Mount, Model 11
11G	Gutter Mount
11P	Permanent Mount
11EG	Extended Gutter Mount
11HG	High Gutter Mount
11EHG	Extended High Gutter Mount
EBK*3	Extension Bar Kit for Model 11, 12, 24 and VB-1
*8422A348	Service Parts Kit
*8422A162	CP-25 to Visabar
*8422A253	Mounting with Switch
*8422A254-01	Clamp-on Hardware
*8422A256-01	Bolt-on Hardware
*8422A260	Hook-on Hardware
SVK	Siren to Visabar Mounting Kit

MODEL 12
TWINSONIC

12HK*3	Hook-on Mount
12G	Gutter Mount
12P	Permanent Mount
12EG	Extended Gutter Mount
12HG	High Gutter Mount
12EHG	Extended High Gutter Mount
12XKF	Converts 12X to 12F
12KF	Converts 12 to 12F
DMCK	Converts 12 to 12X
SLTK	Visabeam Mounting Kit (Does not include grill)
*8540A073A.	Mounting Kit, (Hardware only for SLTK)
*8470A147	Dome Gasket Kit
*8470A213A	Service Parts Kit
*8470A070	Wiring and Mounting Kit
*8422A254-01	Clamp-on Hardware
*8422A256-01	Bolt-on Hardware
*8422A260	Hook-on Hardware

14, 143, 144

414	Self-leveling Bracket
14-4P	Stanchion Mount
VK-14	Kit for Mounting 14 on VB-1
*8422A029-12	Mounting Kit

MODEL 16

*8541A007A	Mounting Kit with Switch
*8240A209	3 Position Switch, Off, plus 2 on

MODEL 17

417*	Self-leveling Bracket
VK-17	Mounting of 17 to VB-1
*8240A322	Switch Kit
*8240A323	Mounting Kit

MODEL 27X

*8436A042A	Motor Replacement Kit

MODEL 044

*8226A367	Accessory Kit
*8240A555	Accessory Kit

MODEL 121 VITALIGHT

421-P	Stanchion Mount for 121A
*8444A047	Switch Kit

MODEL 173

417*	Self-leveling Bracket
VK-17	Kit for Mounting on VB-1
*8240A322	Switch Kit
*8240A323	Mounting Kit
*8240A324	Switch Kit for 173D

MODEL 174

417*	Self-leveling Bracket
VK-17	Kit for Mounting on VB-1
*8240A322	Switch Kit
*8240A323	Mounting Kit

MODEL 175

417*	Self-leveling Bracket
VK-17	Kit for Mounting on VB-1
*8240A321	Switch Kit
*8240A323	Mounting Kit
*8240A324	Switch Kit for 175D

MODEL 176

417*	Self-leveling Bracket
VK-17	Kit for Mounting on VB-1
*8240A321	Switch Kit
*8240A323	Mounting Kit
*8240A324	Switch Kit for 176D

MODEL 184

417*	Self-leveling Bracket
VK-184	Kit for Mounting on VB-1
*8424A017-01	Accessory Kit, Mtg with Switch
*8424A017	Accessory Kit w/o Switch

MODEL 312

417*	Self-leveling Bracket
*8459A079	Shock Mounting Conversion Kit
*8449A029-01	Accessory Kit, Hardware with Switch

MODEL 371

*8459A079	Shock Mounting Conversion Kit
*8459AO76	Shock Mounting Kit
*8459A032	Accessory Kit

MODEL 372

*8459A076	Shock Mounting Kit
*8459A032	Accessory Kit

BR-2S

*8263A048	Accessory Kit

CJ-184/CJ-284

VKJ-184	Visabar Mounting Kit
*8423A056A	Service Parts Kit
*8423A029	Accessory Kit, Mount to flat surface

FB-1, 2, 11, 12

4FBP	Stanchion Mount for FB-1
*200B217	Radio Suppressor Kit FB-1, 2
*8441A054	FB-2 Wiring & Mounting Kit

LL-4

VK-LL4	Kit for Mounting on VB-1
*8285A215-12	Accessory Kit

ACCESSORY KITS

SPEAKERS

CJ-24

*8;283A570	Accessory Kit

CJ-100

*8283A570	Accessory Kit

CP-25

*8283A541	Accessory Kit
*8422A162	Visabar Mounting

CP-I00

*8283A541	Accessory Kit
*8422A162	Visabar Mounting

GR-24/100

*8287A020	Accessory Kit

TS-24/100

TS-24CK	Converting Speakers for use in Twinsonic
*8470A145	Accessory Kit

50/950

*8476A016	Accessory Kit

SIRENS VEHICLE

28

*8209A022	Accessory Kit, Hardware

C4B

*8209A022	Accessory Kit, Hardware
*8209A023	Accessory Kit, Brake

C5GB

*8209A021	Accessory Kit, Hardware
*8209A023	Accessory Kit, Brake

EG

*8209A019	Accessory Kit

PEO

*8209A019	Accessory Kit

P280/660

*8209A022	Accessory Kit, Hardware

Q1B, 02B

*8209A021	Accessory Kit
*8209A023	Accessory Kit, Brake

WG

*8209A020	Accessory Kit, Hardware

WCW

*8170A192	Accessory Kit, Mounting

WL

*8209A020	Accessory Kit, Hardware
*8209A024	Accessory Kit, Light 12V

WLW

*8170A195	Accessory Kit

O/VG

*8209A019	Accessory Kit, Hardware

VL

*8209A019	Accessory Kit, Hardware
*8209A024	Accessory Kit, Light 12V

SIRENS INDUSTRIAL

53/54/55/56

*8233A046	Accessory Kit
*8233A036	Bulkhead Mounting Kit for 55 & 56

55X/56X

*8242A055A	Resilient Mounting Kit

250

*8535A011	Accessory Kit

350/450

*8435A194	Accessory Kit, Hardware

500/600/700/800

*8468A065	Accessory Kit

VEHICULAR LIGHT & MECHANICAL SIREN DATA

MODEL	CURRENT DRAW/AMPS	LAMP TYPE FEDERAL P/N	MFG. TYPE
FB-1 2, 3 Series	3.5 AMPS	8440A033	GE1507
FBH-11(fast RPM)	4.4	8440A350	NAP12258
FBH-12 Series	4.4	8440A350	NAP12258
11	11.0	8107A033	GE4416
12	19.0	8107A058	GE4505, A, B, C&R
12E	13	8107A087	GE7400
12EF	16	8107A087	GE7400
14 Series	6	8107A033	GE4416
121 (12V)	3.1	8440A108	GE1195
17	6	8107A033	GE4416
176, 184 Series	11	8107A033	GE-4416
22	15	8440A108	GE1195
22H	20	8440A350	GE448 Halogen
24	28.5	8440A108	GE1195
24A, 24E	21.5	8440A108	GE1195
24AH 24EH	28.0	8440A350	GE448.
24C	18.7	8440A350	GE448
24H	37.2	8440A350	GE448
25D	36	8440A108	GE1195
312	11 AMPS	8107A066	GE4464

VEHICULAR SIRENS

MODEL	CURRENT DRAW/AMPS
C4A, C5, C6	90 AMPS
EG, EP	11 “
O	12 “
Q1, Q2B	100 “
VG, VL, WG	11 “
WGW	16 “
28, 66G	75 "

INSTRUCTION SHEET
FOR
MODEL 11
SERVICE PARTS KIT
(Part No. 8422A348)

GENERAL.

The Service Parts Kit contains a quantity of parts which are not readily available through local sources. Needless equipment down-time can be minimized when the parts in this kit are on hand. Refer to the "Kit Contents List" (below) for the description and quantity of parts included in the kit.

KIT CONTENTS LIST.

Description	Qty.	Part No.
Sprocket & Shaft Assy.	1	8422A266
Worm Gear Clutch Assy.	1	8422A114
Chain	1	8422A061
Motor, 12 VDC	1	8422Bl11-05
Dome Gasket	2	8422A020
Lamp Holder Shaft Bearing	4	8422AOll
Retaining Ring	4	8422A010

SERVICE DATA.

A. Motor.

The motor should be replaced when any of the following conditions are present:

1. Both lamps illuminate, but neither rotates.
2. Motor is sluggish or slow.
3. Motor operates intermittently.

Before replacing the motor, ensure that:

1. All electrical connections are secure.
2. The motor gear box assembly is not binding. The gear should have sufficient "play" for proper motor operation.

B. Chains.

When replacing the chain, ensure that it is not too tight and does not bind.

C. Dome Gaskets.

When domes are replaced, the associated gaskets should also be replaced to keep out dust and moisture.

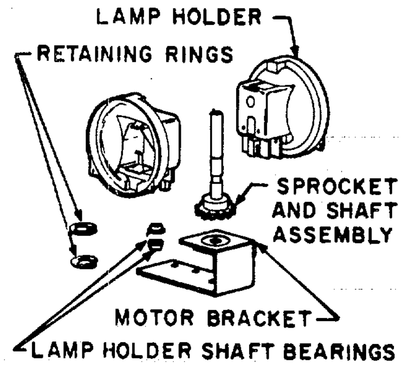
D. Sprocket and Shaft Assy and Worm Gear Clutch Assy.

Life tests on these components have shown them to be highly reliable. However, should failure occur, installation should be performed in reverse order of removal.

E. Lamp Holder Shaft Bearings and Retaining Rings.

To replace the lamp holder shaft bearings and retaining rings, proceed as follows (see diagram):

1. Remove the lamp holder assemblies.
2. Remove both retaining rings.
3. On the light which has the motor installed only, loosen the set screw in the worm gear and clutch assembly.
4. Pull the sprocket and shaft assembly out from the bottom.
5. Lift out the bearings from inside the motor bracket.
6. Install new bearings and reassemble.



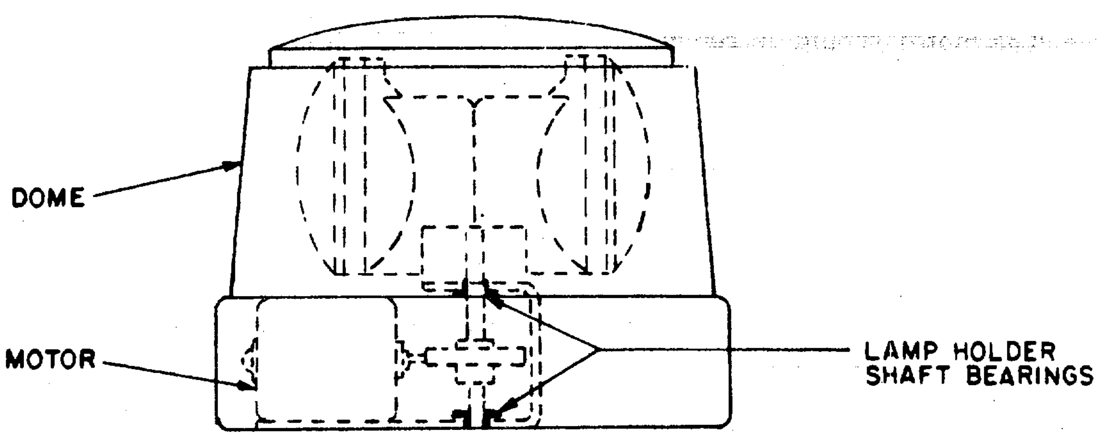
MAINTENANCE.

A. Lubrication.

The Model 11 light mechanism require oil every four to six months under normal use. The light with no motor installed (slave) should have two or three drops of light machine oil on its lamp holder shaft bearings. See diagram below. The light with the motor installed should also have several drops of oil on its lamp holder shaft bearings plus three drops in each of the motor bearing oil holes, A piece of thin wire may be helpful in guiding the drops of oil to the motor bearing oil holes.

B. Cleaning the Plastic Domes.

Ordinary cleaning of the plastic domes can be accomplished by using mild soap and a soft rag. Should fine scratches or a haze appear on the housing, they can ordinarily be re- moved with Simoniz Paste Cleaner and Simoniz Master Wax (or equivalents). CAUTION: The use of other materials such as strong detergents, solvents, petroleum products, etc. can cause crazing (cracking) of the plastic dome.



INSTRUCTION SHEET
FOR
MODEL 12
SERVICE PARTS KIT
(PART NO. 8470A213A)

GENERAL.

The Service Parts Kit contains a quantity of parts which are not readily available through local sources. Needless equipment down-time can be minimized when the parts in this kit are on hand. Refer to the "Kit Contents List" (below) for the description and quantity of parts included in the kit.

KIT CONTENTS LIST*

Description	Qty.	Part No.
Sprocket & Shaft Assy.	1	8470A117
Worm Gear Clutch Assy.	1	8422A114
Motor, 12VDC	1	8422B111-25
Dome Gasket Kit	1	8470A147
Chain, Short	1	8470A043
Chain, Long	1	8470A044
Flange Bearing	1	8470A030
Sprocket & Drive Shaft Assy.	1	8470A116
Spur Gear	1	8470A010

SERVICE DATA.

A. Motor

The motor should be replaced when any of the following conditions are present:

1. Both lamps illuminate, but neither rotates.
2. Motor is sluggish or slow.
3. Motor operates intermittently.

Before replacing the motor, ensure that:

1. All electrical connections are secure.
2. A separate ground connection is connected between the light's base terminal strip and vehicle ground.
3. The motor gear box assembly is not binding. The gear should have sufficient "play" for proper motor operation.

B. Chains.

If only one lamp assembly rotates, check the associated chain. When replacing the chain, ensure that it is not too tight and does not bind.

C. Dome Gasket Kit.

When domes (plastic housings) are replaced, the associated gaskets should also be replaced to keep out dust and moisture.

D. Sprocket and Shaft Assys., Gears and Bearing.

Life tests on these components have shown them to be highly reliable. However, should failure occur, installation should be performed in reverse order of removal.

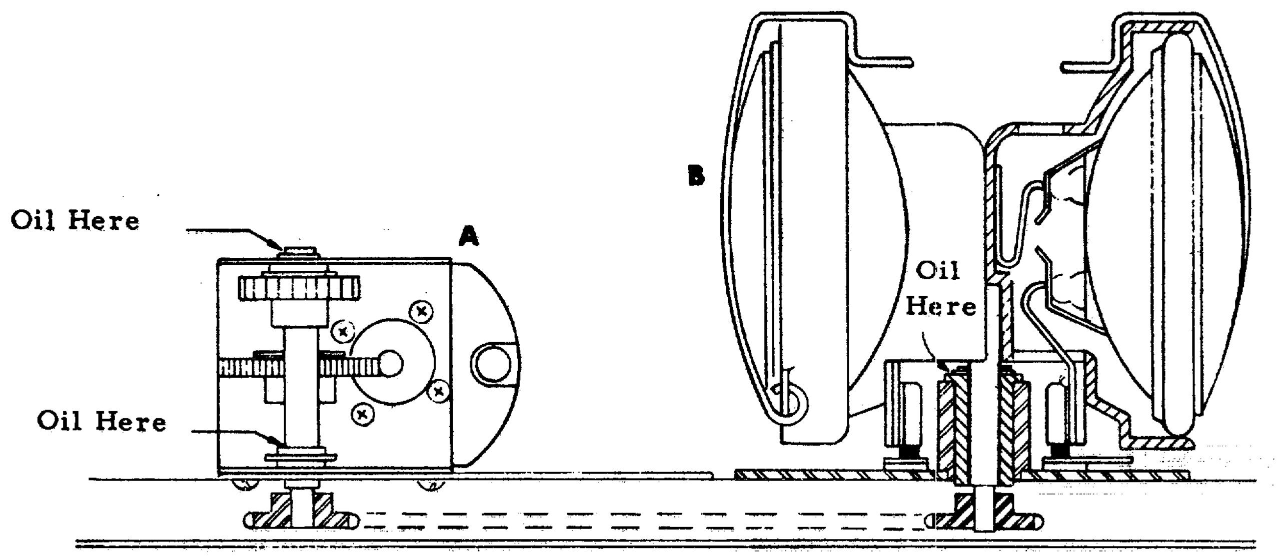
MAINTENANCE.

A. Oiling.

The TwinSonic light mechanisms require oiling every four to six months under normal use. Use 2 or 3 drops of light machine oil when oiling the mechanisms. The motor, located next to the main terminal block, has oil holes at the front and back. To gain access to the front oil hole, the left side mirror assembly must be removed. The two shafts of the gear and shaft assembly should be oiled as shown in detail A. (below).

B. Cleaning the Clear Plastic Housings.

Ordinary cleaning of the plastic housings can be accomplished by using a mild soap and soft rag. Should fine scratches or a haze appear on the housings, they can ordinarily be removed with Simoniz Paste Cleaner and Simoniz Master Wax (or equivalents).



INSTRUCTION SHEET
FOR
MODELS 22, 24, and 25
SERVICE PARTS KIT NO. 8542A289

GENERAL.

This Service Parts Kit contains a quantity of parts that are not readily available from local source. Equipment downtime can be minimized when the parts in this kit are on hand. Refer to the Kit. Contents List for the description and quantity of parts in the kit.

Description	Qty.	Part No.
Screw, Slt, Hex Washer hd SS, 8-32	3	7000A336-06
Screw, Mach, Truss hd, Slt, SS, 10-32	3	7000A455-06
Screw, Mach, Truss hd, Slt, SS 1/4-20	4	7000A457-10
Screw, Mach., Truss hd, Sems 10-32	2	7006A053-06
Screw, Thd.Cut, Pan hd.Slt, 8-32	6	7011A104-03
Locknut, Cld drawn, Stl, 3/8-24	3	7065A018
Lkwash, Int Teeth, Stl, 3/8"	3	7075A032
Cleaner, Dome and Chrome	1	8287B349
Retainer, Spring	6	8440A258
Gasket , Bulkhead	2	8542A027
Spacer	2	8542A071B
Repair Kit, Gear	1	8542A224
Kit, Gasket Service	1	8542A237
Motor and Motor Bracket Assy.	1	8542C070
Grease Fitting	1	8542A293

SERVICE DATA.

Before proceeding with troubleshooting of a malfunctioning light, check all connections to the vehicle electrical system. In addition make sure that the light is properly grounded to the vehicle chassis and that all switches associated with the light are functioning properly.

A. Lamp Replacement.

Federal Model 24 AeroDynic Light Bars are equipped with either incandescent or halogen lamps, as required by the user.

1. Incandescent Lamp. - Replace with GE1195 or equivalent.

2. Halogen Lamp - Replace with Federal part no. 8440A350 only. Replacement with standard H1, 55 watt halogen lamps may result in premature lamp burnout.

B. Gear Train Service

Grease all gears at least twice a year, using medium consistency Dow Corning DC33, or equivalent. The special grease fitting required to perform this operation is provided in this service kit. The fitting can be attached to any grease gun having a 1/8" N.P.T. outlet. Figures 1 and 2 show the greasing procedure.

C. Motor.

1. Before servicing the motor, make sure that the gear train is free of binding.

2. Make sure that motor gear box is not binding. There should be a small amount of gear backlash for proper motor operation.

3. Replace motor if operation is sluggish or intermittent after it has been determined that there is no binding and that all electrical connections are correct.

D. Dome Cleaning.

Use Dome and Chrome cleaner and a soft cloth to prevent scratching.

Figure 1

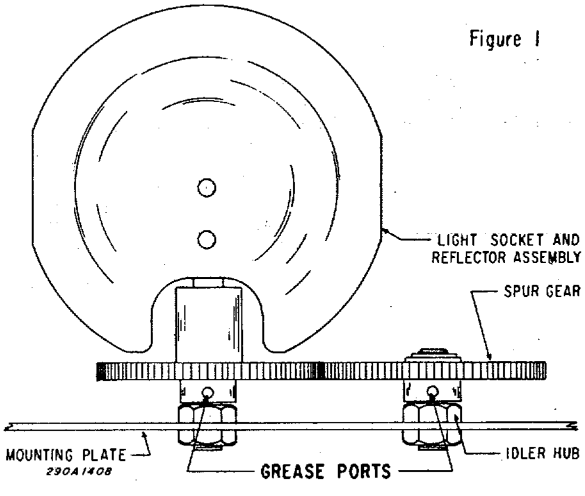
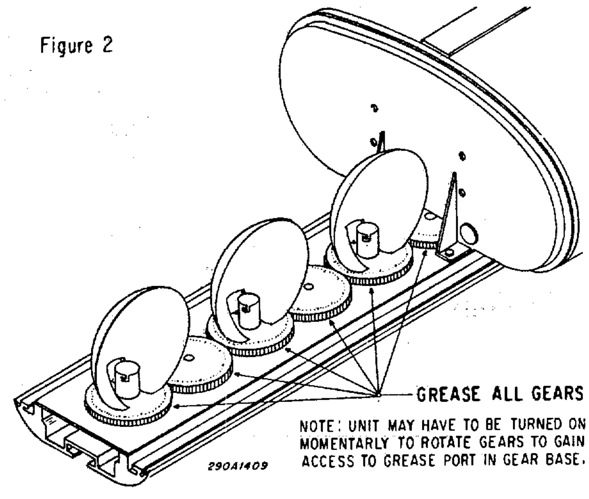


Figure 2



INSTRUCTION SHEET
FOR
MODELS PA-15A, PA-20A AND PA-70
SERVICE PARTS KIT
(PART NO. 124A030A)

GENERAL.

The Service Parts Kit contains a quantity of parts which, by their nature and use in a circuit, are more likely to fail in the Model PA-15A, PA-20A or PA-70 Electronic Siren. Refer to the "Kit Contents List" (below) for the description and quantity of parts included in the kit.

KIT CONTENTS LIST.

Description	Qty.	Part No.
Transistor, 40316, Si. NPN	1	125B410
Transistor, Power Output, PNP	2	125B403
Transistor, Blocking, PNP	1	125B406
Fuse, 15-Amp., 3AG, 32V	2	148A107
Resistor, 0.05 Ohm, 10%, 5W, Wirewound	2	103A208
Coil & Diaphragm Kit	1	8287A164

SERVICE DATA.

Most electronic siren malfunctions can be corrected by replacing the fuse and/or output transistors. Fuse and output transistor failures are usually caused by one of the following:

1. Defective speaker. Check for short-circuited voice coil before replacing transistor(s).

2. Excessive battery charging voltage. Charging voltage should not be over 16VDC in 12-volt systems.

3. Unit exposed to weather. Never install electronic siren so that unit will be exposed to water or road dirt which will contaminate output transistors.

4. Unit exposed to excessive ambient temperatures. Never install electronic siren in the path of heater ducts or other high heat area.

5. Output transistors may sometimes fail because of excessive voltage "spikes" or excessive continuous siren use.

When replacing output transistors, check the associated 0.1 or 0.05 ohm resistors in the electronic siren.

In order to facilitate installation of the coil and diaphragm assembly, a separate instruction sheet (part no. 8283A614) is packed with each coil and diaphragm assembly.

INSTRUCTION SHEET
FOR
MODELS PA200 AND PA1000
SERVICE PARTS KIT
(PART NO. 8536A065A)

GENERAL.

The Service Parts Kit contains a quantity of parts which, by their nature and use in a circuit, are more susceptible to failure than the other components in PA200 and PA1000. Refer to the "Kit Contents List" (below) for the description and quantity of parts included in the kit.

KIT CONTENTS LIST.

Description	Qty.	Part No.
Transformer, Driver	1	120B141
Transistor, Power, PNP	2	125B428
Transistor, 40316, NPN	1	125B410
Transistor, Silicon, NPN	2	125All9
Transistor, D13T1, PNPN, GE2N6027	1	125C310
Diode, TI51	2	115B101
Diode, IN5400	1	115A105
Diode, ED3002S	1	115B301
Bulb, 14V, 0.33 Amp.	2	8107A085
Fuse, 20-Amp., 3AG	5	148A127
Holder, Fuse	1	143A106

SERVICE DATA.

Most electronic siren malfunctions can be corrected by replacing the fuse and/or output transistors. Fuse and output transistor failures are usually caused by one of the following:

1. Defective speaker. Check for short-circuited voice coil before replacing transistor(s).

2. Excessive battery charging voltage. Charging voltage should not be over 16 VDC in 12-volt systems.

3. Unit exposed to weather. Never install electronic siren so that unit will be exposed to water or road dirt which will contaminate output transistors.

4. Unit exposed to excessive ambient temperatures. Never install electronic siren in the path of heater ducts or other high heat area.

5. Output transistors may sometimes fail because of excessive voltage "spikes" or excessive continuous siren use.

SIGNAL DIVISION
Federal Signal Corporation

SERVICE DEPARTMENT

256A359B

C.E. NIEHOFF COMPANY

Floor Mounted Switch (Part No. DR-139) Ansul Part No. S-52920

UNITY MANUFACTURING COMPANY

Rear Decklights (AG-6) Ansul Part No. S-28259
Front Spotlights (Model-225) Ansul Part No. S-52540
Ansul Part No. S-52541

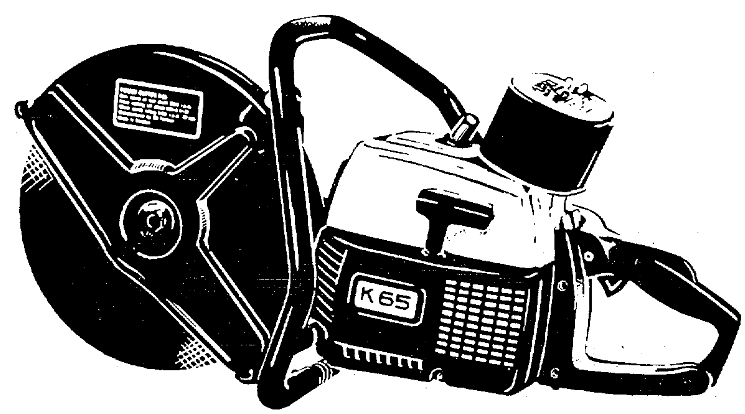
PARATECH INCORPORATED

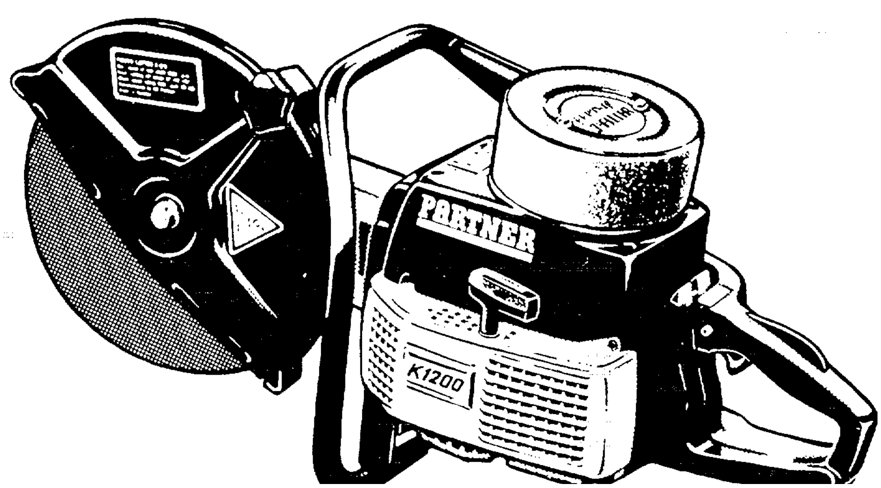
Rescue Saw (K-1200) Ansul Part No. S-27770

PARTNER®

K1200 · K65

INSTRUKTIONSBOK
INSTRUCTION BOOK
BETRIEBSANLEITUNG
MANUEL D'ENTRETIEN





Foreword

If your new cutting machine is to be the good PARTNER you have every right to expect we should like to underline the importance of certain inspections and maintenance being carried out at regular intervals. The power cutter is a machine with a high cutting capacity and it is fitted with safety features to make the work carried out as safe as possible. If the safety features are out of operation or if the machine is used carelessly or wrongly, the result can be injuries suffered by the operator or people in the immediate vicinity. For this reason you should read through the safety regulations on page 7 very carefully.
Under no conditions may a power cutter be modified from its original design except with the permission of the manufacturer in writing. Non-authorized modifications can imply considerable safety risks.
The manufacturers reserve the right to carry out modifications without previous notice.

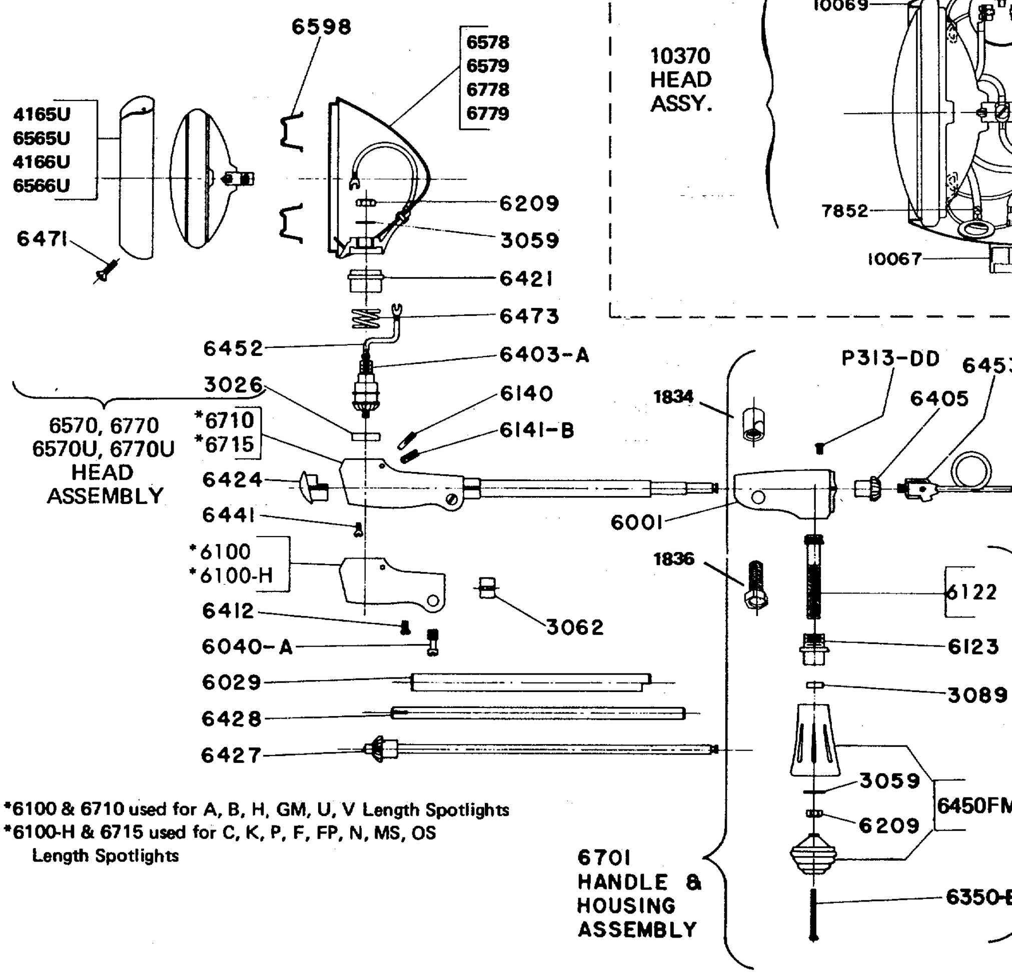
AB PARTNER

UNITY MANUFACTURING CO • 1260 N. CLYBOURN AVE. • CHICAGO, IL 60610 • PHONE: 312-943-5200

PARTS SHEET

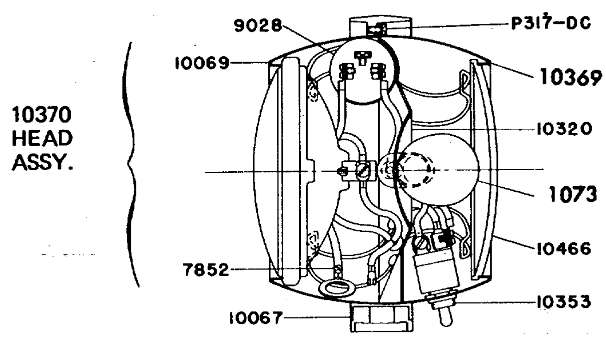
Form No. 105-6 10-80

	SPOTLIGHT	ROOFLIGHT
MODEL S-6	225	275
MODEL H-1	250	U250

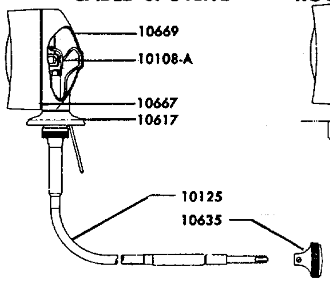


*6100 & 6710 used for A, B, H, GM, U, V Length Spotlights
*6100-H & 6715 used for C, K, P, F, FP, N, MS, OS Length Spotlights

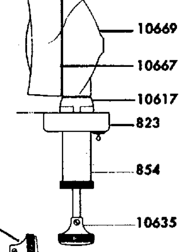
DOUBLE HEADER
MODEL 10300



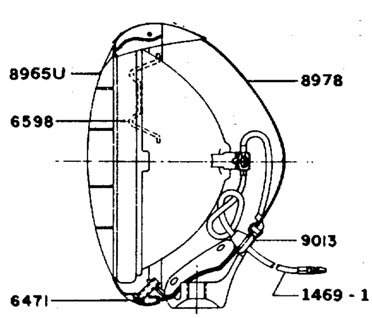
10600 CABLE SPOTLITE



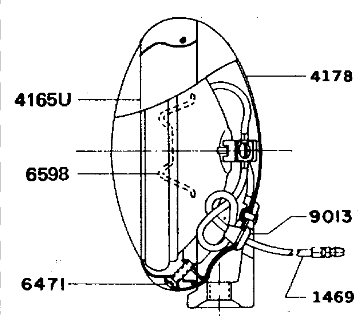
10700 ROOF SPOTLITE



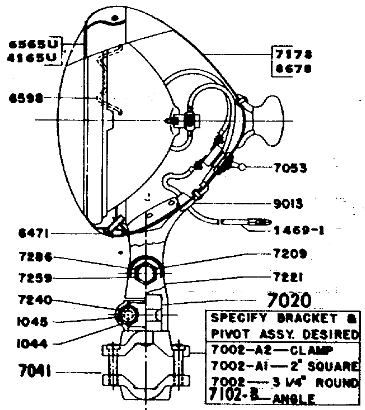
F1 300 SERIES



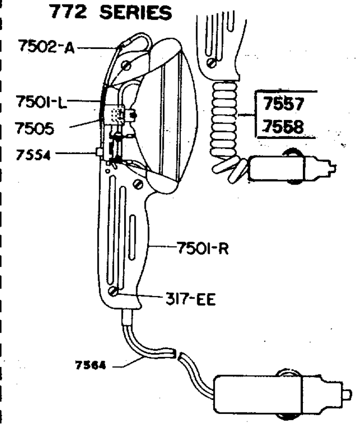
H1 520 SERIES



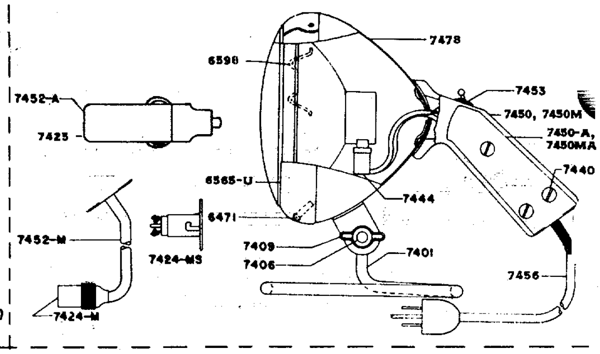
S6 & H1
AG & 5AG SERIES



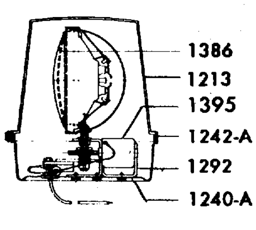
UNILITE
772 SERIES



SEARCHLIGHT
740, 742, 744

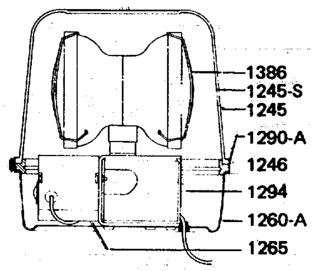


RV-15
UNIBEACON



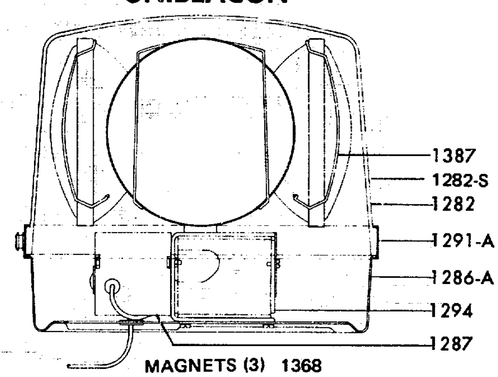
MAGNETS (3) 1270

RV-25
UNIBEACON



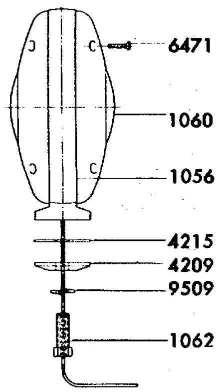
MAGNETS (3) 1347

RV-46
UNIBEACON

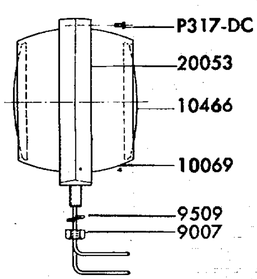


MAGNETS (3) 1368

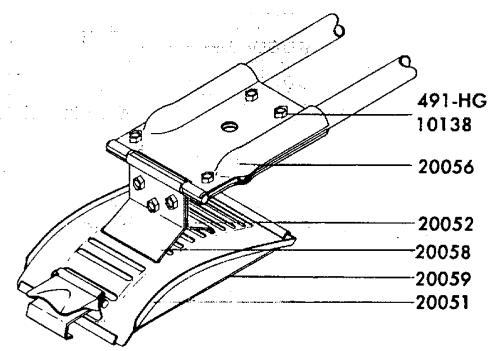
20110-7" WARNING LIGHT



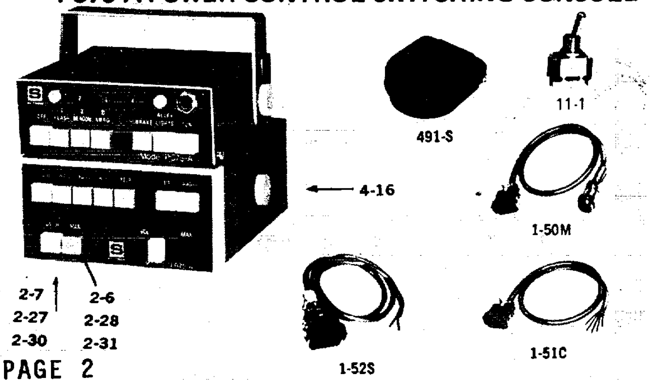
20040-5" WARNING LIGHT



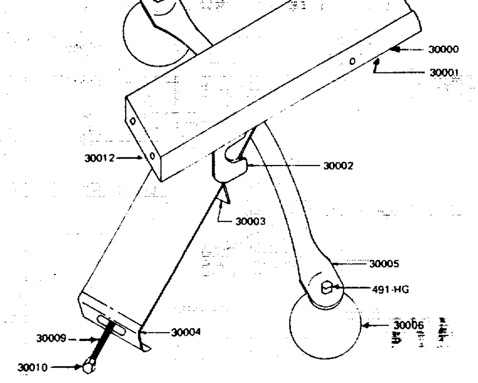
UNIRACK I END BRACKET



SPR-70A, 73A, 73B, 75A SI-TRON AMPLIFIER
PC75-A POWER CONTROL SWITCHING CONSOLE



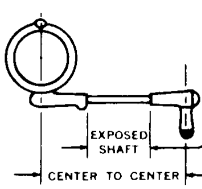
UNIRACK II



PAGE 2

PART NUMBER	DESCRIPTION	Suggested LIST PRICE
1-52S	Radio Audio Cable	37.97
1-50M	Radio Control Cable Kit	94.90
1-51C	Radio Control Cable Kit	56.93
2-6	Black Button SPR 70A	4.67
2-7	White Button SPR 70A	4.67
2-27	White Button SPR 73A, 73B	4.67
2-28	Blue Button SPR 73A, 73B	4.67
2-30	White Button PC75A, SPR-75A	4.67
2-31	Blue Button PC75A, SPR-75A	4.67
4-16	Mounting Bracket	56.93
11-1	Horn Ring Control Selector Switch	15.67
P-313DD	Screw	.13
P-317DC	Screw	.17
317EE	Screw	.13
491HG	Bolt	.43
491-S	Foot Switch	61.70
823	Escutcheon	2.37
854	Sleeve	2.70
1003A	Drill Bushing	.37
1044	Nut	.13
1045	Washer	.07
1056	Body	12.97
1060	Lens 7" -20110 Amber, Blue, Red	8.50
1062	Bolt	2.70
1213	Dome for RV15-Amber, Blue, Clear, Red	15.73
1240A	Base for RV15	7.13
1242-A	Ring Assy. RV15	5.40
1245	Dome for RV25-Amber, Blue, Clear, Red	21.43
1245-S	Spitfire Dome (Blue or Red) RV25	39.13
1246	Gasket-RV25	1.30
1260-A	Base for RV25	40.07
1265	Motor for RV25, RV26	50.00
1270	Magnet-RV15	3.90 ea.
1282	Dome-RV26, 45 & 46 Amber, Blue, Clear, Red	28.57
1282-S	Spitfire Dome (Blue or Red) RV26, 45 & 46	46.27
1286-A	Base-RV26, 45 & 46	51.17
1287	Motor-RV45 & 46	60.00
1290-A	Ring Assy.-RV25	7.20
1291-A	Ring Assy.-RV26, 45 & 46	13.10
1292	Gear Train-RV15	30.77
1294	Gear Train-RV25, 26, 45 & 46	43.20
1347	Magnet-RV25	13.30 ea.
1368	Magnet-RV26, 45 & 46	16.13 ea.
1386	Spring for RV15, 25 & 45	.80
1387	Spring for RV26 & 46	1.27
1395	Motor for RV15	47.50
1469-1	Wire Assy.	2.17

PART NUMBER	DESCRIPTION	Suggested LIST PRICE
1834	Wedge	.87
1836	Wedge Screw	.20
3026	Felt Washer	.43
3059	Washer	.13
3062	Bushing	1.00
3089	Felt Washer	.20
4165U	Ring Assy. 520, 250	6.30
4166U	Ring Assy. U250	6.30
4178	Shell Assy. 520	10.00
4209	Washer	.87
4215	Gasket	.17
6001	Handle Housing	6.83
6002	SW. Cap	3.20
6029	Tube *See Note	5.03
6030	Screw	.17
6040-A	Screw	.50
6051-A	Screw	.20
6100	Housing-Long	6.83
6100-H	Housing-Short	6.83
6122	Pinion	4.97
6123	Bushing	1.80
6140	Pin	.13
6141-B	Screw	.20
6151	Toggle Assy.	1.80
6209	Nut	.17
6350-B	Screw	.30
6403-A	Headpost Assy.	5.77
6405	Gear	1.73
6412	Screw	.13
6421	Bushing	1.97
6424	Plug	1.27
6427	Rod & Gear, *See Note	8.10
6428	Tube, *See Note	3.23
6441	Screw	.17
6450FM	Upper & Lower Handle (Black)	2.87
6452	Wire	.63
6453	SW. & Wire	4.67
6471	Screw	.30
6473	Spring	.17
6565U	Ring Assy. 225	6.30
6566U	Ring Assy. 275	6.30
6570	Head Assy. 225	37.50
6570U	Head Assy. 275	37.50
6578	Shell Assy. 225	18.43
6579	Shell Assy. 275	18.43
6598	Spring	.13
6701	Handle & Housing Assy.	19.63
6710	Housing & Tube Assy. *See Note	20.70
6715	Housing & Tube Assy. *See Note	20.70
6750FM	Sub Handle Assy.	9.00
6770	Head Assy. 250	35.40
6770U	Head Assy. U250	35.40
6778	Shell Assy. 250	18.43



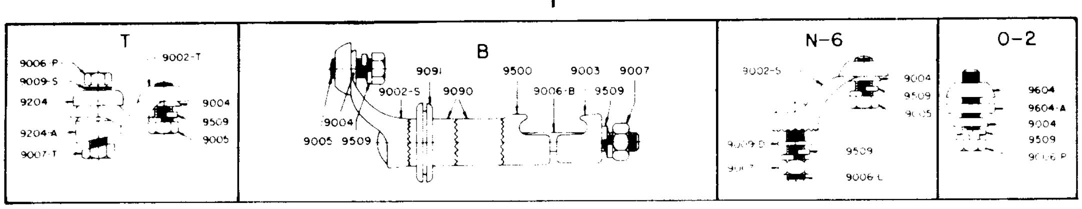
SPOTLIGHT LENGTHS

	N	B	H	A	K	V	GM	C	P	G	F	FP	MS	OS
EXPOSED SHAFT	4¼"	4¾"	5⅞"	6½"	7⅝"	7½*	9"	10⅝"	12⅝"	14"	15⅝"	17⅝"	18⅞"	21⅛"
CENTER TO CENTER	9⅛"	10¼"	11⅜"	12"	12½"	13"	14½"	15½"	17½"	19½"	20½"	22½"	23¾"	26"

NOTE – *When Ordering include Spotlight Length from this Chart

PART NUMBER	DESCRIPTION	Suggested LIST PRICE
6779	Shell Assy. U250	18.43
7015	Gasket-Rooflight	.73
7020	Pivot	3.33
7041	Screw	.17
7053	Switch	5.17
7178	AG Shell Assy.	30.73
7209	Nut	.30
7221	Pivot Housing	17.27
7240	Screw	.43
7259	Washer	.13
7286	Screw	.47
7401	Stand	8.63
7406	Carriage Bolt	.90
7409	Wing Nut	.90
7424-AR	Auto Socket	5.40
7424-M	Marine Plug	6.13
7424-MS	Marine Socket	8.80
7425	Auto Plug	2.70
7440	Screw	.30
7444	Socket	1.97
7450	Handle	7.20
7450-A	Handle Plate	3.60
7450-M	Marine Handle	7.20
7450-MA	Marine Handle Plate	3.60
7452-A	Auto Wire & Plug	10.80
7452-M	Marine Wire & Plug	13.50
7453	Switch	3.23
7456	Wire & Plug	9.00
7478	Shell Assy. 740	18.43
7501-L	Body Left	7.57
7501-R	Body Right	7.57
7502-A	Spring Assy.	1.63
7505	Spacer - Rubber	.47
7554	Switch	2.27
7557	8 1/3' Koiled Kord & Plug Assy.	15.10
7558	12 1/2' Koiled Kord & Plug Assy.	21.30
7564	Cord Set	7.93
7852	Ground Wire	1.50
8678	5AG Shell Assy.	30.73
8965U	Ring Assy. - 300	6.30
8978	Shell Assy. - 300	10.00
9002-S	Bracket Arm	4.00
9002-T	Bracket Arm	2.93
9003	Bracket Clamp	1.63
9004	Cup Washer	.63
9005	Cap Screw	.37
9006-B	Carriage Bolt-6"	1.73
9006-L	Carriage Bolt-1 3/4"	.70
9006-P	Cap Screw	.73

PART NUMBER	DESCRIPTION	Suggested LIST PRICE
9007	Nut	.30
9007-T	Nut	.53
9009-D	Washer	.13
9009-S	Washer	.13
9013	Grommet	.17
9028	Flasher-12V (Unison)	7.20
9030	Flasher-12V (Alternately)	9.40
9052-15	Wire Assy.	1.03
9052-15A	Wire Assy	1.03
9090	Bushing	1.27
9091	Grommet	.80
9204	Washer	1.20
9204-A	Bushing	1.07
9500	Bracket Clamp	1.63
9509	Lock Washer	.13
9604	Washer	1.60
9604-A	Washer	1.80
10067	Ring	9.90
10069	Shell Assy. -20040	18.43
10108-A	Yoke Assy.	1.07
10125	Cable Assy. -37 1/2"	26.80
10125	Cable Assy. -33 1/2"	26.80
10138	Nut & Lock Washer	.30
10320	Reflector Assy.	9.00
10353	Switch	5.47
10369	Shell-10,300	18.43
10370	Head Assy.-10,300	70.00
10465	Lens-Clear	3.33
10466	Lens-Red	3.33
10467	Lens-Amber	3.33
10468	Lens-Blue	3.33
10617	Base Assy	4.50
10635	Knob	4.50
10667	Ring	7.00
10669	Body	11.40
20051	Bracket Assy.	10.43
20052	Clamp	1.97
20053	Ring Assy.	9.90
20056	Clamp Bracket	2.70
20058	Clamp & Pin	3.60
20059	Bracket Pad	2.37
30000	Upper Cover	46.80
30001	Lower Bar	30.23
30002	Bracket Clamp	3.97
30003	Support Strap	8.20
30004	Body Strap	8.70
30005	Support Arm	10.97
30006	Suction Cup	3.77
30009	Threaded Rod	2.70
30010	Acorn Nut	3.03
30012	Sheet Metal Screw	.37



ALL PRICES AND SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

A SERVICE CHARGE OF $1.50 WILL BE APPLIED TO ALL ORDERS LESS THAN $15.00.

FOR REPLACEMENT SEALED BEAM LAMPS SEE FORM 12B.

UNITY MANUFACTURING CO. • 1260 N. CLYBOURN AVE. • CHICAGO, ILLINOIS 60610 • PHONE 312-943-5200

Contents:

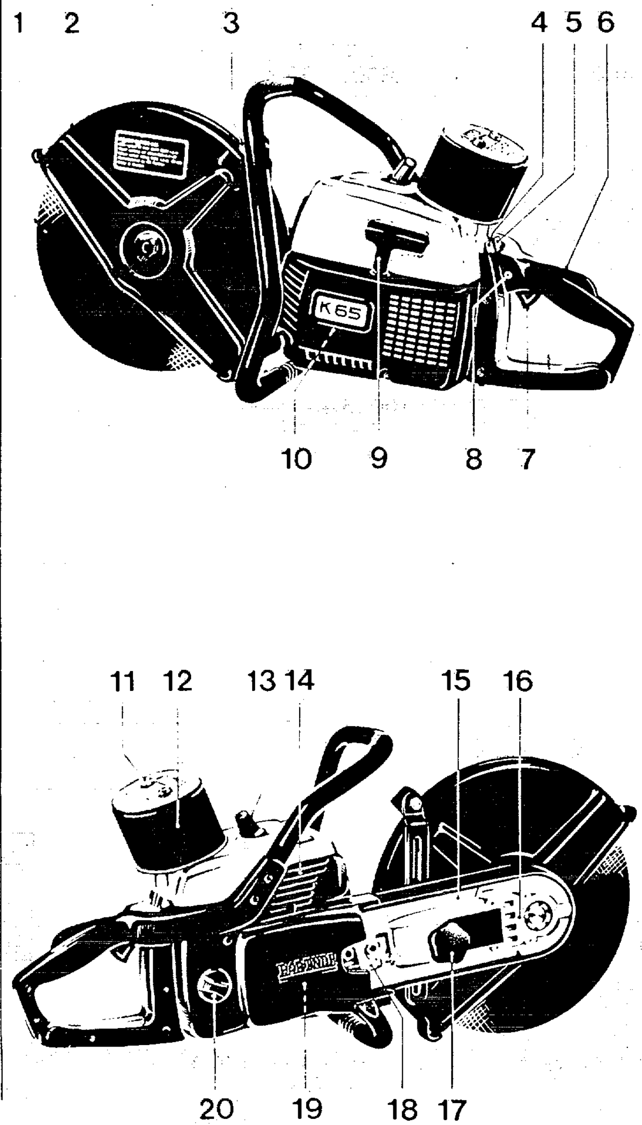
Technical data

Engine	**K65**	**K1200**
air-cooled, two-stroke		
capacity	65 c.c.	100 c.c.
Ignition system		
transistor ignition system	PARTNER IGNITRON	PARTNER IGNITRON
spark plug	Bosch WKA 225 T3	Bosch WKA 225 T6
electrode spark gap	0.5 mm (.020")	0.8 mm (.031")
Carburetor		
speed governor	Tillotson HS-175 A	Tillotson HS-175 A
range of regulations	9.600±400	9.600±400
Fuel		
oil mixture ratio:	4 %: (1:25)	4 % (1:25)
with PARTNER oil	2 % (1:50)	2 % (1:50)
tank capacity	0.75 1 (1.32 Imp. pints - 1.59 US pints)	1.0 I (1.76 Imp. pints - 2.12 US pints)

CUTTING EQUIPMENT

Cutter disc	**Gear ratio**	**Max. peripheral speed**
12" (K65)	1:1.97	80 m/s
12" (K1200)	1:2.0	80 m/s
12" (K1200)	1:1.7	100 m/s
14" (K1200)	1:2.0	100 m/s

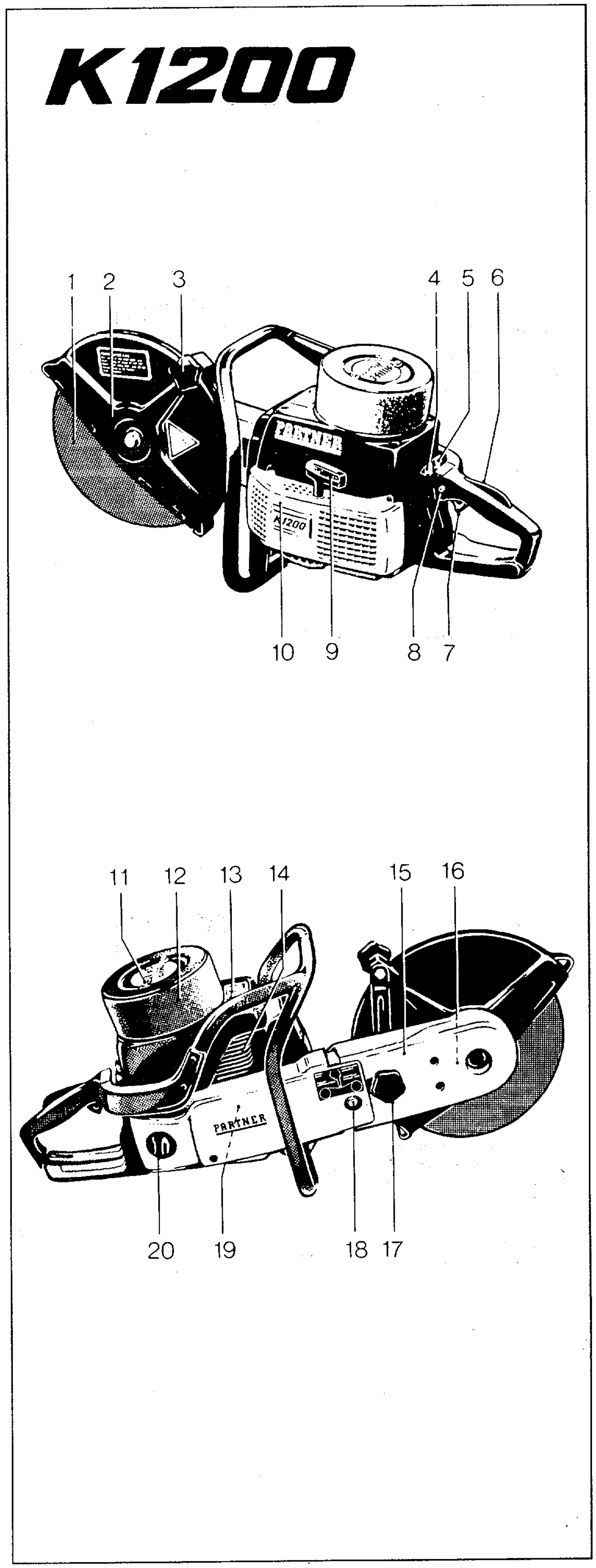
K65



Pos.	Description
1.	Cutter Disc
2.	Guard
3.	Knob for guard
4.	Stop control
5.	Choke
6.	Idling catch
7.	Throttle control
8.	Starter throttle control
9.	Starting handle
10.	Starter unit
11.	Lock nut for air filter
12.	Air filter
13.	Spark plug
14.	Cylinder
15.	Vee-belt
16.	Cutting arm
17.	Knob for guard
18.	Belt tensioner
19.	Drive wheel, clutch
20.	Fuel tank

Pos. Description

Pos.	Description
1.	Cutter Disc
2.	Guard
3.	Knob for guard
4.	Stop control
5.	Choke
6.	Idling catch
7.	Throttle control
8.	Starter throttle control
9.	Starting handle
10.	Starter unit
11.	Lock nut for air filter
12.	Air filter
13.	Spark plug
14.	Cylinder
15.	Vee-belt
16.	Cutting arm
17.	Knob for guard
18.	Belt tensioner
19.	Drive wheel, clutch
20.	Fuel tank



Operator Safety Precautions

1. Never operate the machine when you are fatigued.

2. Use safety footwear, snug-fitting clothing, safety goggles, and hearing and head-protection devices and gloves.

3. Always use caution when handling fuel. Move the cutting machine at least 10 feet from the fueling point before starting engine.

4. Do not allow other persons to be near the machine when starting or cutting. Keep bystanders and animals out of the work area.

5. Never start cutting until you have a clear work area and secure footing.

6. Always hold the unit firmly with both hands when the engine is running. Use a firm grip with thumbs and fingers encircling the handles.

7. Keep all parts of your body away from the cutter disc when the engine is running. 8. Never operate without the disc guard.

9. Do not cock, wedge or jam the disc in the cut.

10. Before starting the engine, make sure that the disc is not contacting anything.

11. Always carry the machine with the engine stopped and the muffler away from your body.

12. Never operate a cutting machine that is damaged, improperly adjusted, or not completely and securely assembled. Be sure that the disc stops moving when the throttle-control trigger is released.

13. Always shut off the engine before setting the machine down.

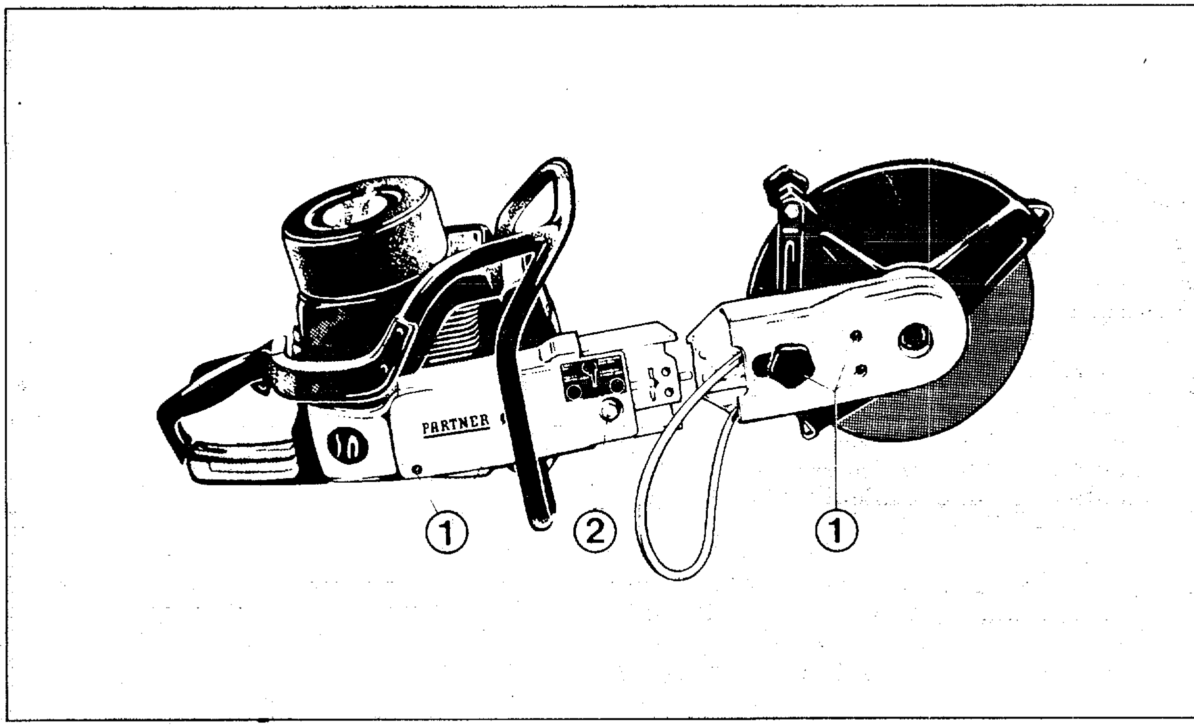
14. Keep the handles dry, clean, and free of oil or fuel.

15. Operate the machine only in well-ventilated areas. Failure to use the power cutter in a well-ventilated area can lead to serious injury or death.

16. The cutter disc should be removed from the cutting machine when it is transported or stored.

17. All service other than items listed in the machine builder's maintenance instructions should be performed by competent service personnel.

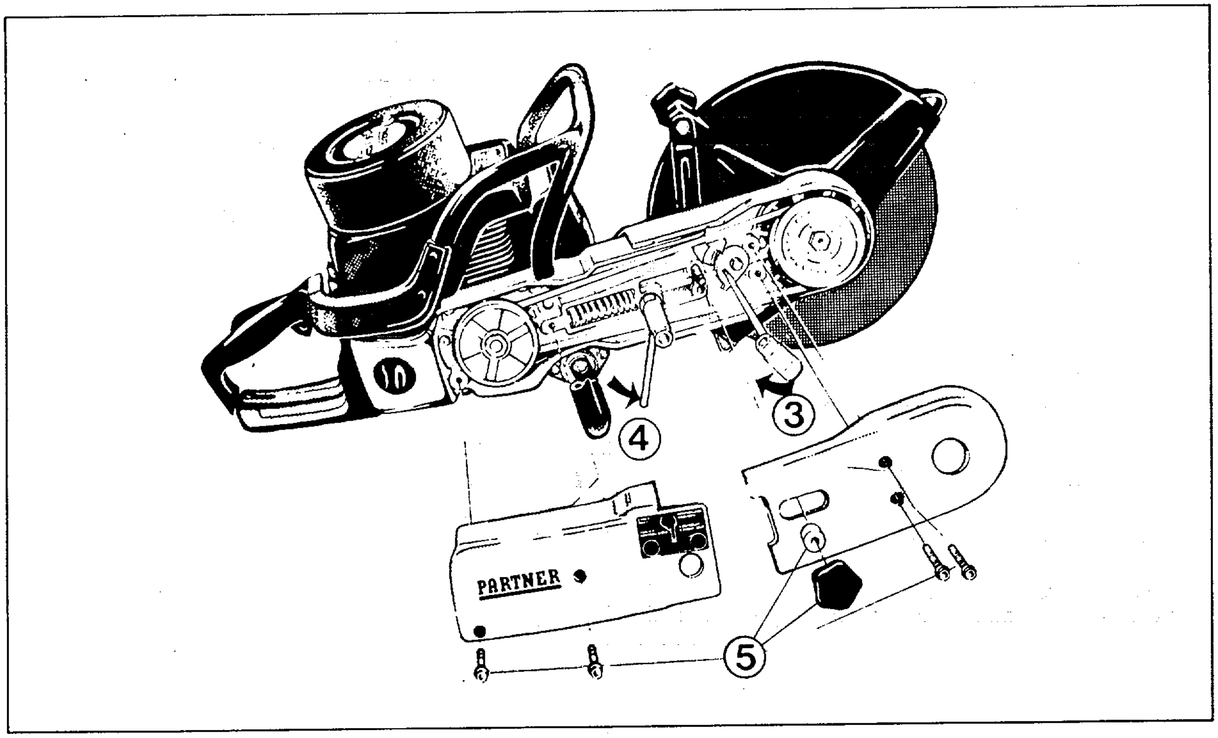
18. Do not operate a cutting machine unless specifically trained to do so.



Fitting the cutter arm K1200

Remove both the drive belt protecting casings (4 screws, knob and bushing) (1). Remove the attaching bolt (2) for the cutter arm

Fit the bolt on which the knob was placed in the upper hole in the arm and tighten the attaching bolt (2) by hand.

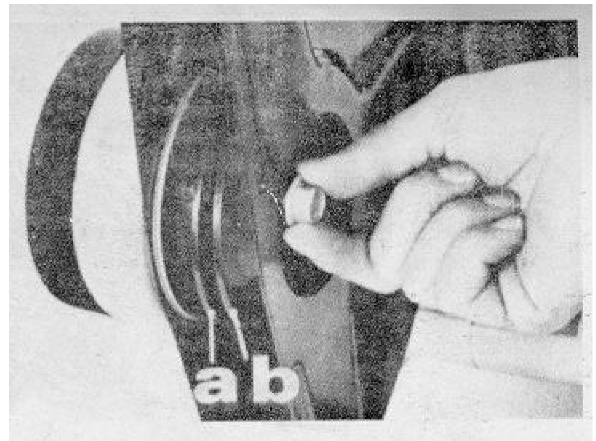


Fit the vee-belt and tension it by turning the eccentric (3) to its bottom position (clockwise) using socket wrench 381306. Tighten the attaching bolt (4) (anti-clockwise) using socket wrench 381317.

Fit the drive belt protective casings, the bushing and the knob (5). Tension the vee-belt after 1-2 tank refills and thereafter every day. See page 31 concerning turning the arm.

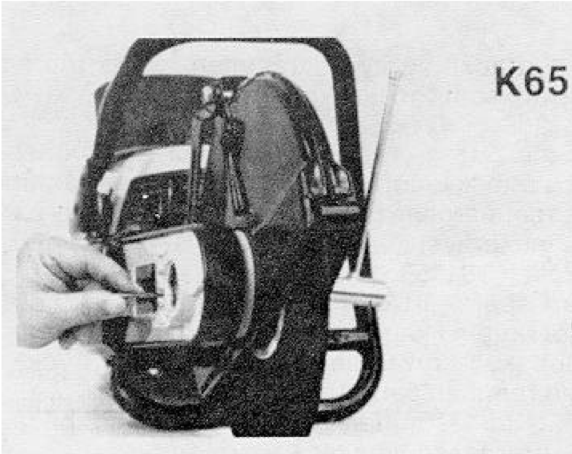
Care of cutter discs

All cutter discs are breakable and, therefore, care shall be exercised in their handling and storage to prevent damage. Immediately after unpacking, all discs-shall be closely inspected to make certain that they have not been damaged from handling, shipping or other causes. Cutter discs should be laid flat on a flat surface away from excessive heat or moisture. Discs should not be stored subject to: exposure to high humidity, water, other liquids, or freezing temperatures. Discs used on machines on emergency vehicles should be dismounted after use and discarded or carefully stored as described in this section.

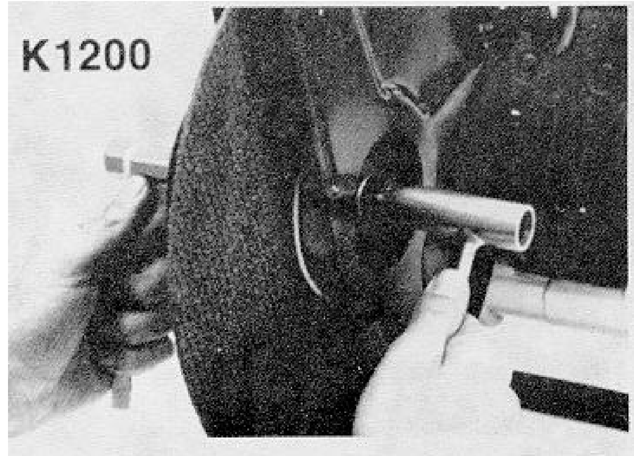


Cutter disc

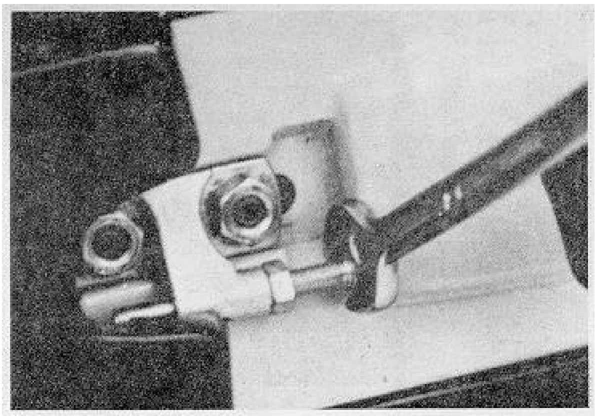
PARTNER cutter disc is specially manufactured for free-hand cutting. The cardboard labels on each side of the disc are intended for use as a spacer to distribute the pressure from the flange washer.



The disc is located between the flange hub (a) and the flange washer (b). Turn the flange washer round so that it fits into the flange hub. The cutter disc should be tightened by using the fixed wrench 381317 that is included in the tool kit. The spindle is secured by means of pin 202934 which is pushed in as far as possible. The disc is tightened clockwise.

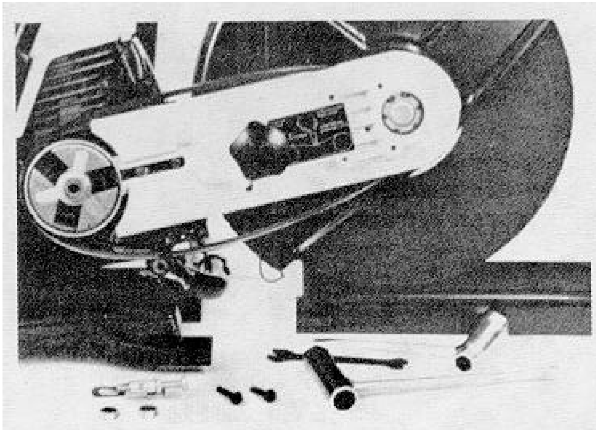


The disc is located between the flange hub (a) and the flange washer (b). Turn the flange washer round so that it fits into the flange hub. The cutter disc should be tightened by using the fixed wrench 381317 that is included in the tool kit. Support the shaft with the spark plug wrench. The disc is tightened clockwise but if the cutter arm is turned 180° it must be tightened in counterclockwise direction. (See also page 31.)



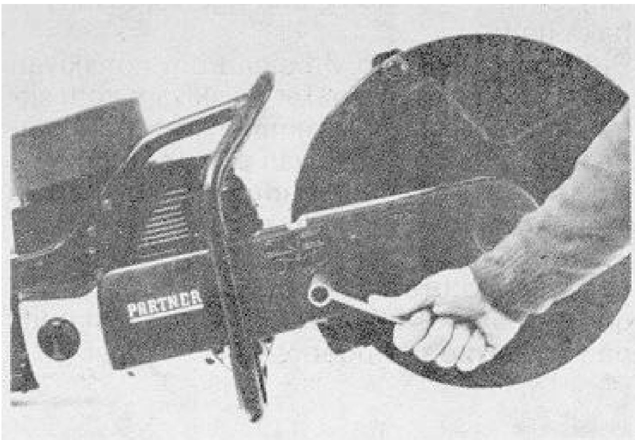
Vee-belt K65

The belt is completely enclosed and well protected from dust and dirt as well as from mechanical damage during cutting work.
To stretch the vee-belt, loosen the nuts retaining the cutter arm. Use tool 381306.
Loosen the knob (17) securing the safety casing and the belt protector. Pull off the belt protector forward to expose the belt. Loosen the locknut on the tensioning screw and adjust the screw using wrench 381158. The vee-belt must be tensioned so much that it cannot quite be pushed down against the bottom of the cutter arm with normal thumb force. (A force of 4 kgf = 8.8 lbf should be needed to press down the drive belt 5 mm = 0.2").
Tighten the lock nut and then the two nuts retaining the cutter arm. Slide on the belt protector and tighten the knob.



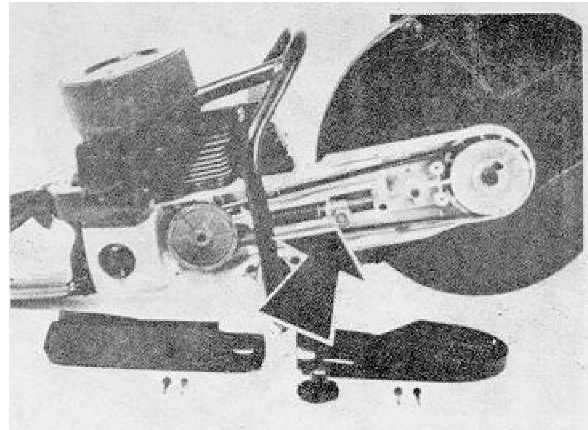
Replacing the vee-belt K65

To replace the vee-belt, remove the clutch casing. Three screws hold this casing in position, one of which is inserted from the top (behind the handle bracket). Unscrew the belt tensioning screw completely.
Lay the belt beside the pulley on the cutter arm and in the slot of the pulley fitted to the engine shaft. When the belt in its correct position, fit it in the cutter arm pulley slot.
A new vee-belt must be re-tightened now and them, preferably after two full tanks of fuel have been used up and then every week.
Note that the knob securing the safety casing is not tightened until the belt protector has been slid into position during re-assembly.



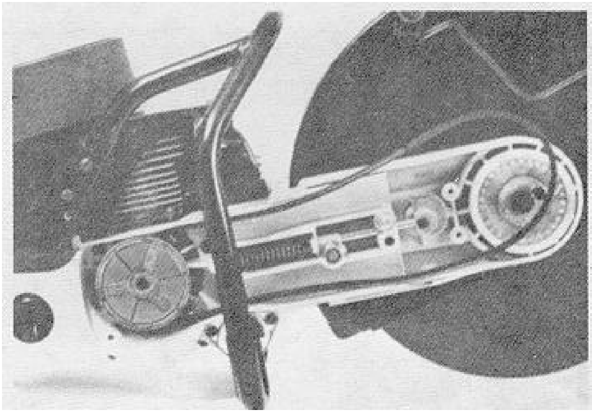
Vee-belt K1200

To stretch the belt, loosen the screw retaining the cutting arm by turning clockwise using the socket wrench included in the tool set and rotate the cutter disc a few turns by hand. When the screw has loosened slight, stretch the belt by using the automatic belt tensioner.

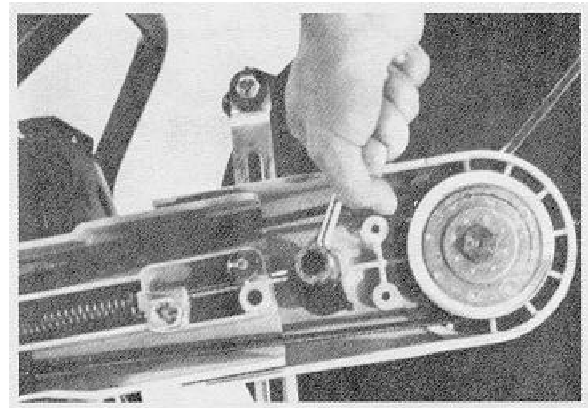


Replacing the vee-belt K1200

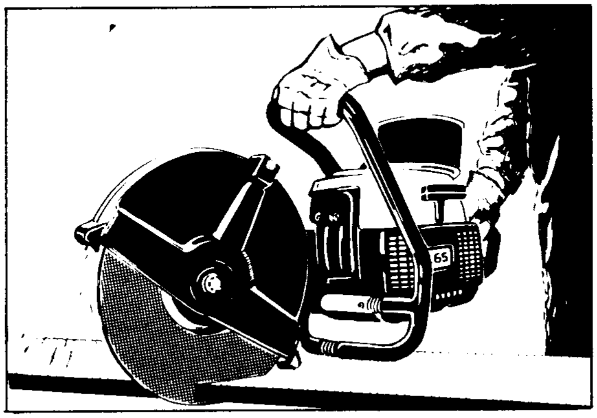
To replace the belt, remove both the casings on the cutting arm. Loosen the screw (at the arrow) holding the cutting arm.



Turn the eccentric counter-clockwise by using the spark plug wrench so that the tension on the spring is released. The cutting arm can then be pressed back and the belt removed.

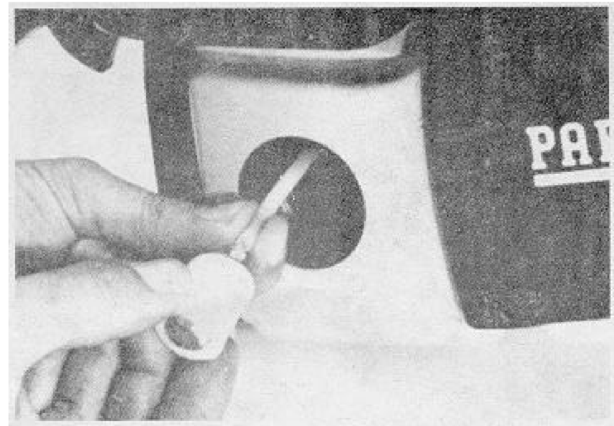


The belt tensioner consists of a powerful spring tensioned by turning the eccentric (fig.) clockwise as much as possible. The belt will then be tensioned by the spring power exactly as much as necessary.
A new belt should be tensioned after 1-2 refillings of the fuel tank. Thereafter check the tension daily.



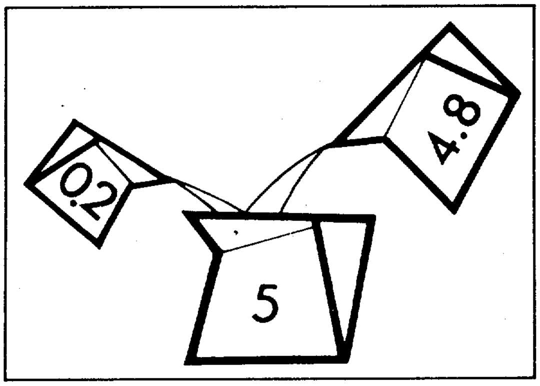
Guard

The guard should be adjusted so that its rear section is close to the workpiece. Particles, dust or spark from cutting are the collected by the guard and directed away from the operator. By using the knob (no. 17 page 4) the guard can be loosened and adjusted to the desired position.



Fuel tank

The fuel tank must be protected from impurities when filling up with fuel. This decreases the risk of running interruptions caused by blockage of the fuel tank filter. The filter cartridge cannot be cleaned but must be replaced if it becomes blocked. This replacement should be done once a year.



Fuel mixture

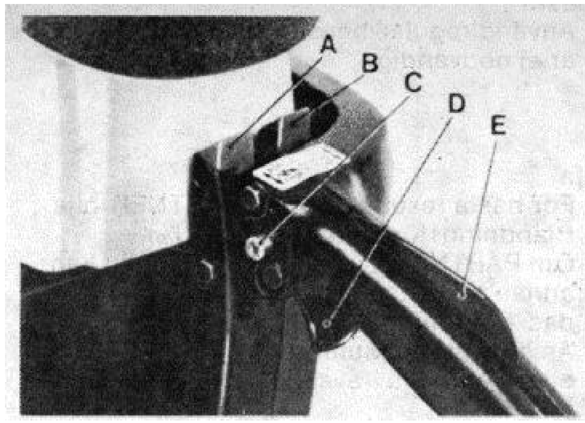
The engine is lubricated by the oil in the fuel mixture.

Petrol (gasoline)

1. Use "regular" petrol (gasoline). Premium grade is not necessary.

Oil

1. For best performance use Partner-oil. Mixture ration 1:50 02 %).
2. If no Partner oil is available, other two-stroke oil of good quality can be used. Mixture ratio 1:25 (4 %).
3. Never use multi-grade oil (10W-30) or any oils formulated for 4-cycles engines. The petrol (gasoline) and the oil must be thoroughly mixed before being put into the fuel tank. **Always shut the engine off before filling the tank.**



Controls

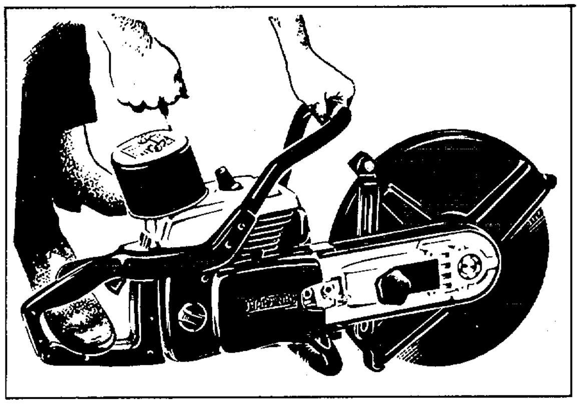
A **Stop control.** When the button is pressed backwards, the engine stops. The button remains in this position and must be returned to its initial position before the engine is started the next time.

B **Choke button**. A cold engine is to be started with the choke flap closed (the button pressed backwards). A warm engine is as a rule to be started without choke.

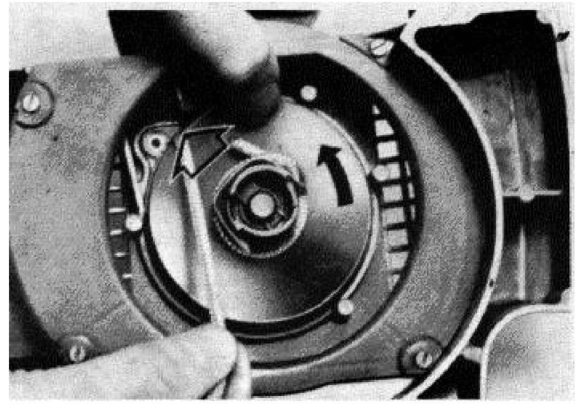
C **Starter throttle catch**. Press in the throttle control and thereafter the starter throttle catch. Release the throttle control and the throttle is blocked in half throttle position. The catch is released when the throttle control is pressed in all the way.

D **Throttle control**. The throttle control is used to regulate engine speed and the speed of the cutter disc.

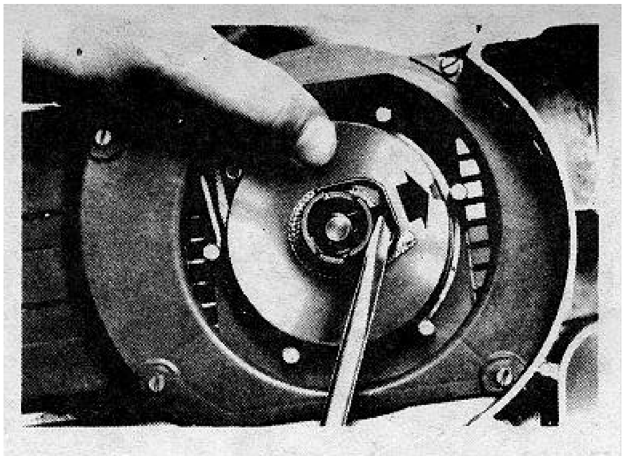
E **Idling catch**. This catch will prevent the throttle from opening accidentally when the engine is at idling speed. When working with the machine the catch is released by the hand holding the rear handle.



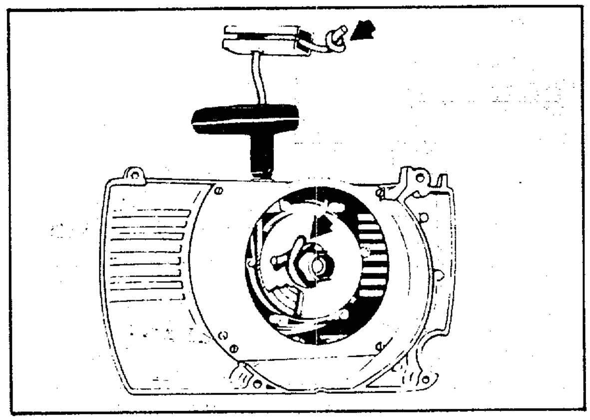
Correct starting position and starting of the machine
Due to the setting of the throttle, the disc will start to rotate as soon as the engine fires so be sure that you and the machine are firmly positioned when starting. Pull the starter cord out smartly a few times until the engine starts.



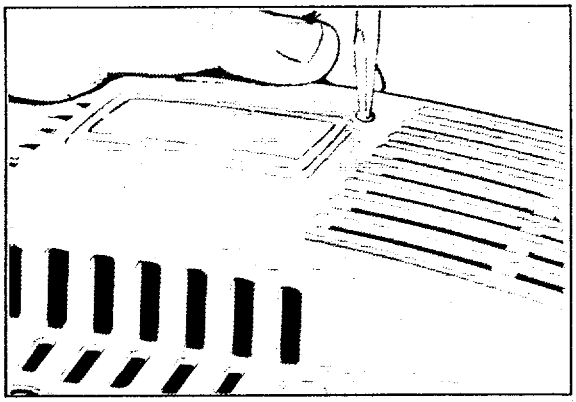
Starter Unit
Replacing the starter cord
Loosen the fan casing. Pull out the starter cord a little and prevent the cord drum from rotating back. Place the starter cord in the recess and let the cord drum rotate back.



Loosen the lock spring and lift up the cord drum. Pull the new starter cord through the hole in the cord drum and further through the fan casing to the starter handle, where the cord is secured by a knot.



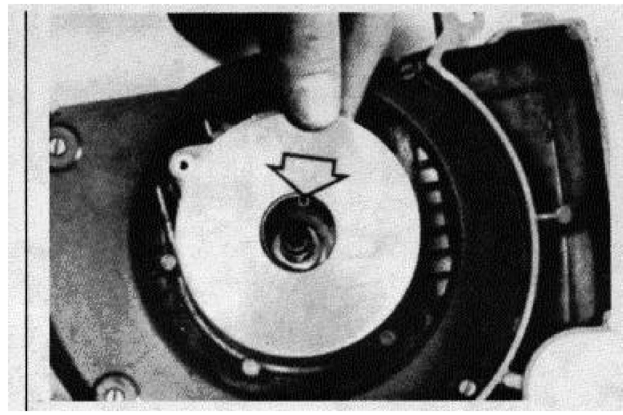
Attach the other end to the cord drum. Take up a few turns of the cord and fit the cord drum. Tension the starter spring by giving the cord drum one or two turns clockwise. Pull the starter cord to make sure that the starter unit functions before screwing the fan casing into position.



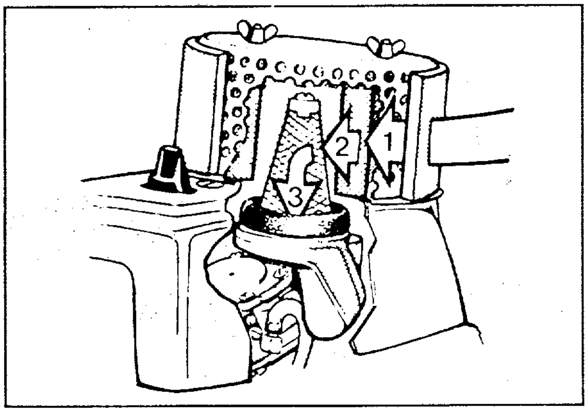
Replacing the starter spring

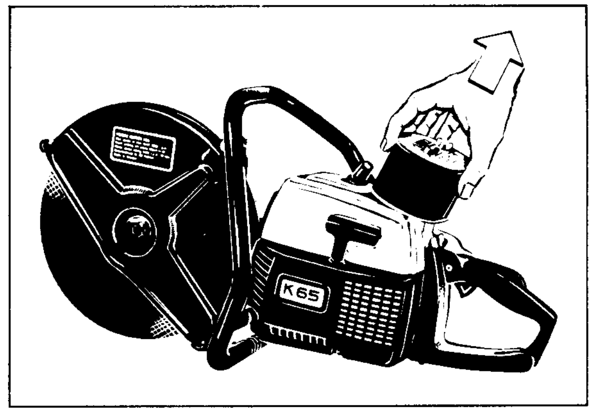
Follow the same procedure as described above for replacement of the starter cord.

Then loosen the screw holding the spring cassette to the fan casing.



Place the eyelet of the spring into the cord before the fitting. In order to guarantee dependable functioning of the starter unit, the cord drum bushing and the starting hooks should be lubricated with silicon oil or similar lubricant at least once a month.



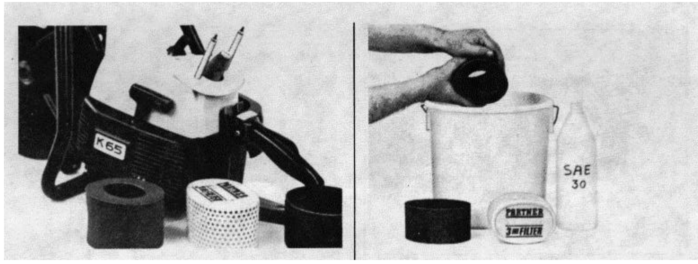


Air filter K65

The air filter systems consists of a pre-filter (1), a main filter (2) and a spill filter (3). The spill filter may only be replaced by an authorized workshop.

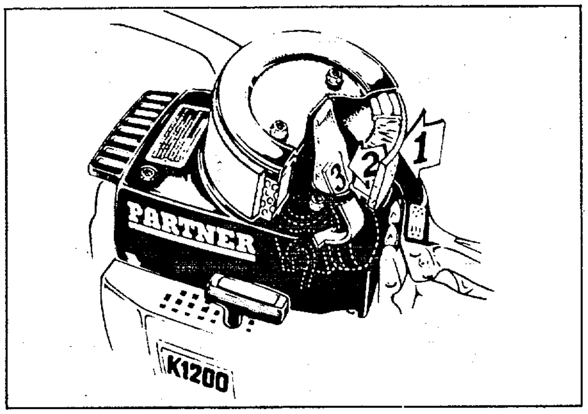
The pre-filter can be changed without using any tools and is easy to clean. It protects the main filter from becoming blocked too quickly.

The pre-filter must be pulled off and shaken clean in connection with every tanking operation. The prefilter should be replaced or thoroughly washed after every 25 hours of operation in steel material or after every ten hours of operation in concrete or similar material which gives rise to intensive dust. The main filter is removed by loosening the nuts and lifting off the filter housing. The filter can be washed. It is to be replaced by a new unit after it has been washed five times.



Each time the main filter is taken out of the filter housing, this housing is to be cleaned. The fitting of a new or washed and re-oiled filter is to be carried out at the same time intervals as those stated above or when required. If the pre-filter is not properly looked after or not used at all, the times mentioned are reduced to a great extent.
The spill filter may only be changed by an authorized workshop. The function of this filter is to prevent dust and dirt from falling down into the carburetor when the other filters are removed.

Cleaning of the main filter can be done in either paraffin or petrol. Dip the filter in the liquid repeatedly and squeeze it out hard after each dip. When all the impurities have been removed from the filter, it must be oiled in as follows: Fill a vessel with SAE30 oil, dip the filter completely in the oil and squeeze it out a few times. Then lift up the filter and squeeze out any superfluous oil. Never wash the same filter more than five times.
Poor servicing or careless washing of the filter can result in an engine breakdown.



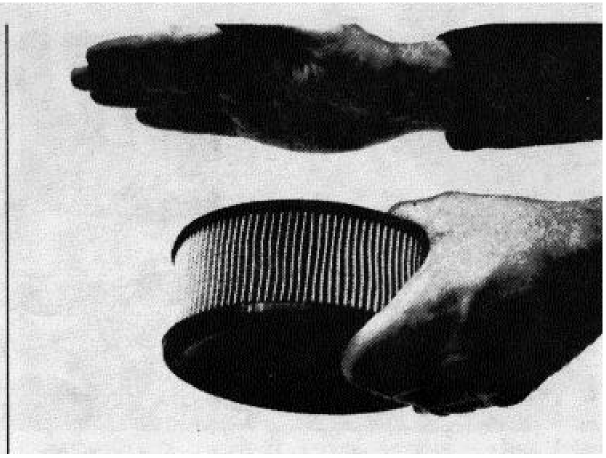
Air filter K1200

The air filter systems consists of a pre-filter (1), a main filter (2) and a spill filter (3). The spill filter may only be replaced by an authorized workshop.
The pre-filter can be changed without using any tools and is easy to clean. It protects the main filter from becoming blocked too quickly.



The pre-filter must be pulled off and shaken clean in connection with every tanking operation. The pre-filter should be thoroughly washed or replaced after 30 hours of operation in steel material or after 20 hours of operation in concrete or similar material which gives rise to intensive dust.

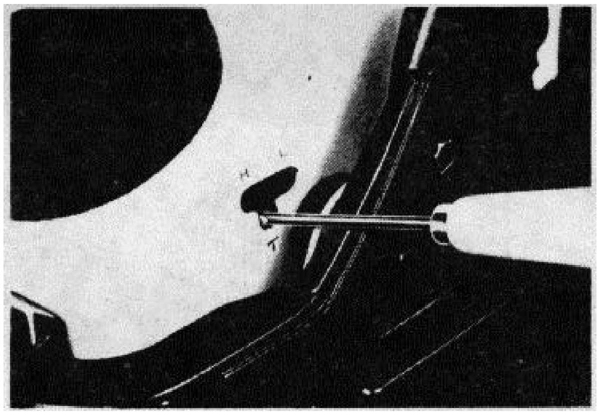




Remove the main filter by loosening the nuts retaining the filter housing and lifting off the housing. The main filter is a paper unit of a special quality grade which must not be washed or blown clean. **The filter may only be shaken clean.** Washing, blowing clean or attempts to clean the filter by using tools damage it to such an extent that it is ruined.

When cutting steel, change the filter after about 60 hours of operation and when cutting concrete after about 40 hours of operation. More frequent changing should be carried out when working under more severe conditions.

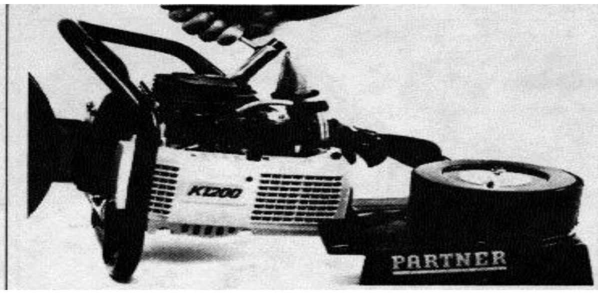
NOTE! Incorrect servicing or neglect to change the pre-filter and main filter at the specified intervals can result in engine break-down.



Carburetor

When delivered from the factory the carburetor is basically set. This means about 3/4 turns open on both the high-speed screw (H) and the low-speed screw (L). The idling screw (t) is to be screwed in 1/2 turns after contact with the throttle shaft lever. After the saw has been run warm the carburetor is ready for fine adjustment. The low-speed screw (L) is to be set so that the engine does not stop at idling speed. The high-speed screw (H) is to be set so that the engine runs well at full speed. Then open the screw 1/4 turns. The carburetor is fitted with an excess speed governor to prevent excessively high engine speed, which would result in the cutter disc turning too fast. At full speed and with unloaded disc you can hear clear variations of the engine speed. This is normal and only a sign of the fact that the speed governor is working. The idling screw (t) is set so that the engine runs at idling speed without the disc rotating.

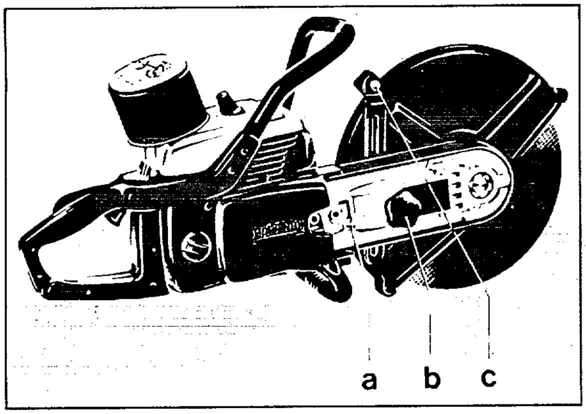


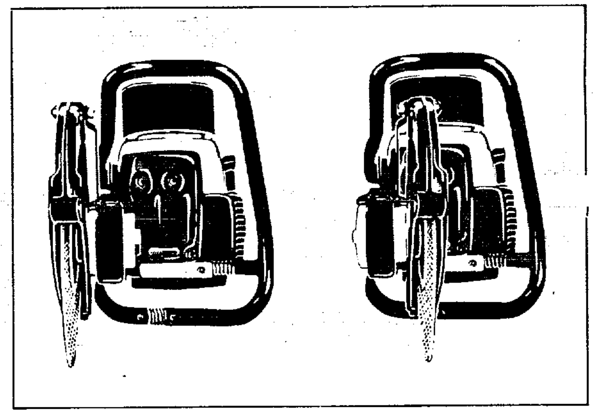


Spark plug

If the engine shall work without running interruptions the spark plug must be kept in good condition and have the correct heat range. Check and if necessary adjust the electrode spark gap. As a rule the spark plug should be changed every second month. **Removing the spark plug, K65**: Lift off the spark plug protector and then loosen the spark plug by using the socket wrench in the tool kit.

Removing the spark plug, K1200: Loosen three screws retaining the cylinder casing. Then lift off the cylinder casing together with the air filter. Loosen the spark plug by using the socket wrench in the tool kit.

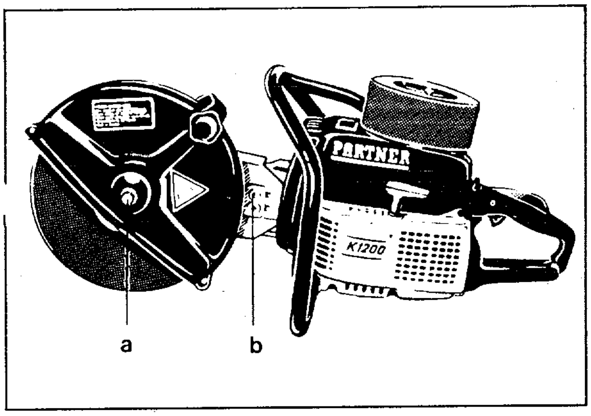


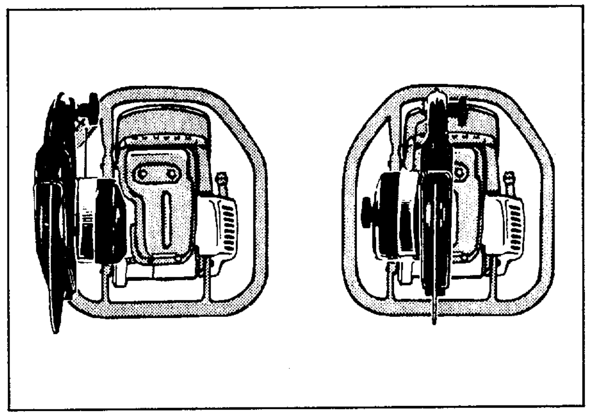


Cutting arm K65

It is possible to turn the cutting arm 180° so that the cutter disc is positioned on the opposite side of the arm. This facilitates cutting close to vertical obstacles such as walls, etc.
The cutting arm, the safety casing and the drive belt are loosened in the same way as when changing the drive belt see page 15.

The screw (c) retaining the locking stay at the safety casing is removed and the safety casing is turned through half a revolution. Turn the arm 180° and then refit parts and screw into position as earlier. Note that the flange washers retaining the cutter disc have a special locking device which does not loosen when the cutter disc changes its direction of rotation.





Cutting arm K1200

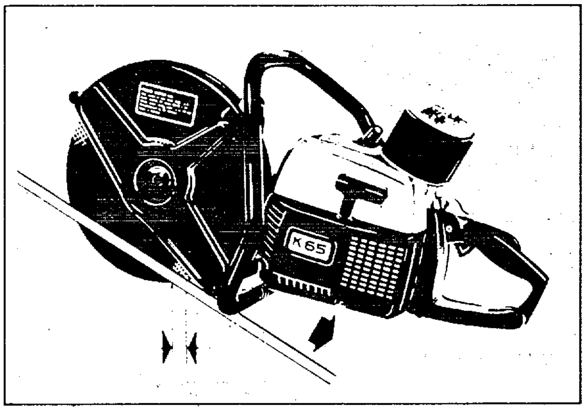
When the cutting arm is in its normal position, the cutter disc is held in position by means of a screw with a right-hand thread (a) while the cutter arm attaching screw (b) has a left-hand thread. This facilitates cutting close to vertical obstacles such as walls, etc.

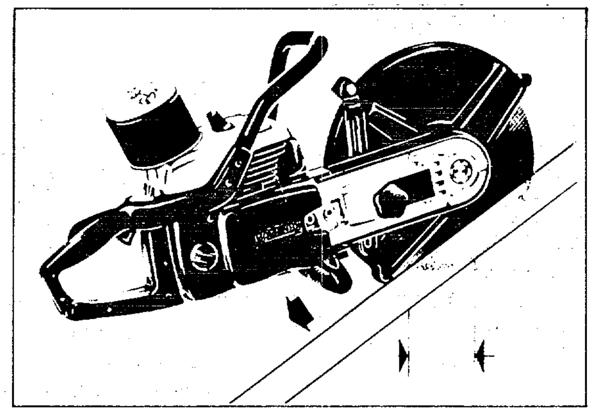
The cutter arm is loosened in the same way as when changing the drive belt, see page 16. Loosen also the knurled knob and the screw retaining the stay. Turn the protective casing through 1800. Fit the drive belt on the engine and then on the cutter arm so that the screw on the stay fits into the lower hole in the crankcase. Interchange screws a and b. Fit the belt on the front pulley and then tension the eccentric. Tighten the cutter arm and fit the casings.

Maintenance scheme

The following is a summary of various measures mentioned in the book and which is essential for the correct servicing of the cutting machine. The time intervals mentioned should be applied if the cutting machine is used for at least 4 hours every day. If the machine is used for a shorter time each day, the shortest intervals can be extended without any ill effects.

Unit on cutter	Operation	Frequency
Guard	Check function	always
Controls	Check function	always
Starter unit	Clean and lubricate moving parts	every month
Air filter:		
Pre-filter	Shake clean	at every tanking operation
Main filter	Clean - replace	see page 25 and 27
Spill filter	Clean - replace	by authorized workshop
Carburetor	Check, adjust	when necessary
Spark plug	Check and adjust electrode gap	when necessary
	Replace	every other month
Engine	Clean cooling vanes	every other week
Vee-belt	New belt to be tensioned after	1-2 refillings
	thereafter check belt tension	daily
Fuel tank	Replace filter cartridge	at least once a year
Screws, bolts and nuts	Check tightening	every week





Working technique

When cutting steel and other metals, always try to maintain high cutting pressure and high disc speed. Try to get smallest possible contact point. Always open the throttle fully when you apply the cutter disc to the material and regulate the speed of the machine by increasing or decreasing the feed pressure.

When cutting stone, concrete- and similar material the disc should be moved forwards and backwards in the cut to obtain good conduction of heat away from the disc and a low temperature at the cutting point. If there is a possibility to cool the cutter disc with water, this results in very good cutter disc economy.

Verktyg
Tools
Werkzeuge
Outils

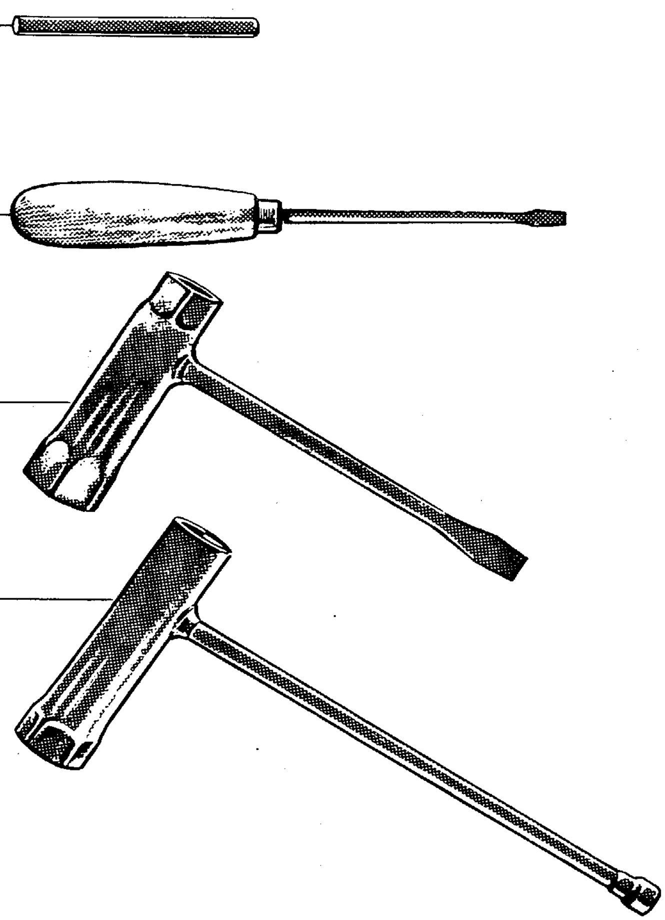
K1200

202934

381035

381306

381317



Verktyg
Tools
Werkzeuge
Outils

K65

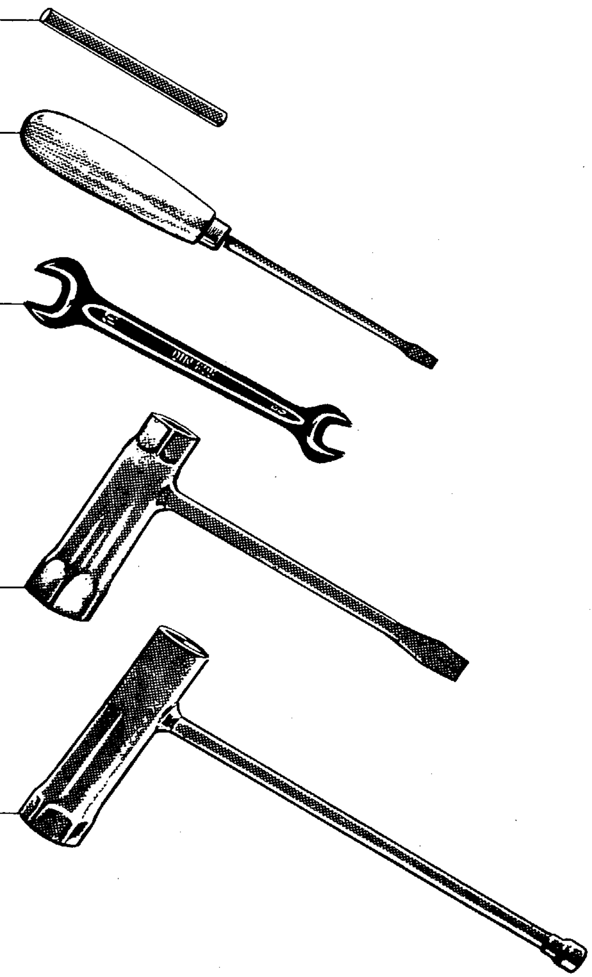
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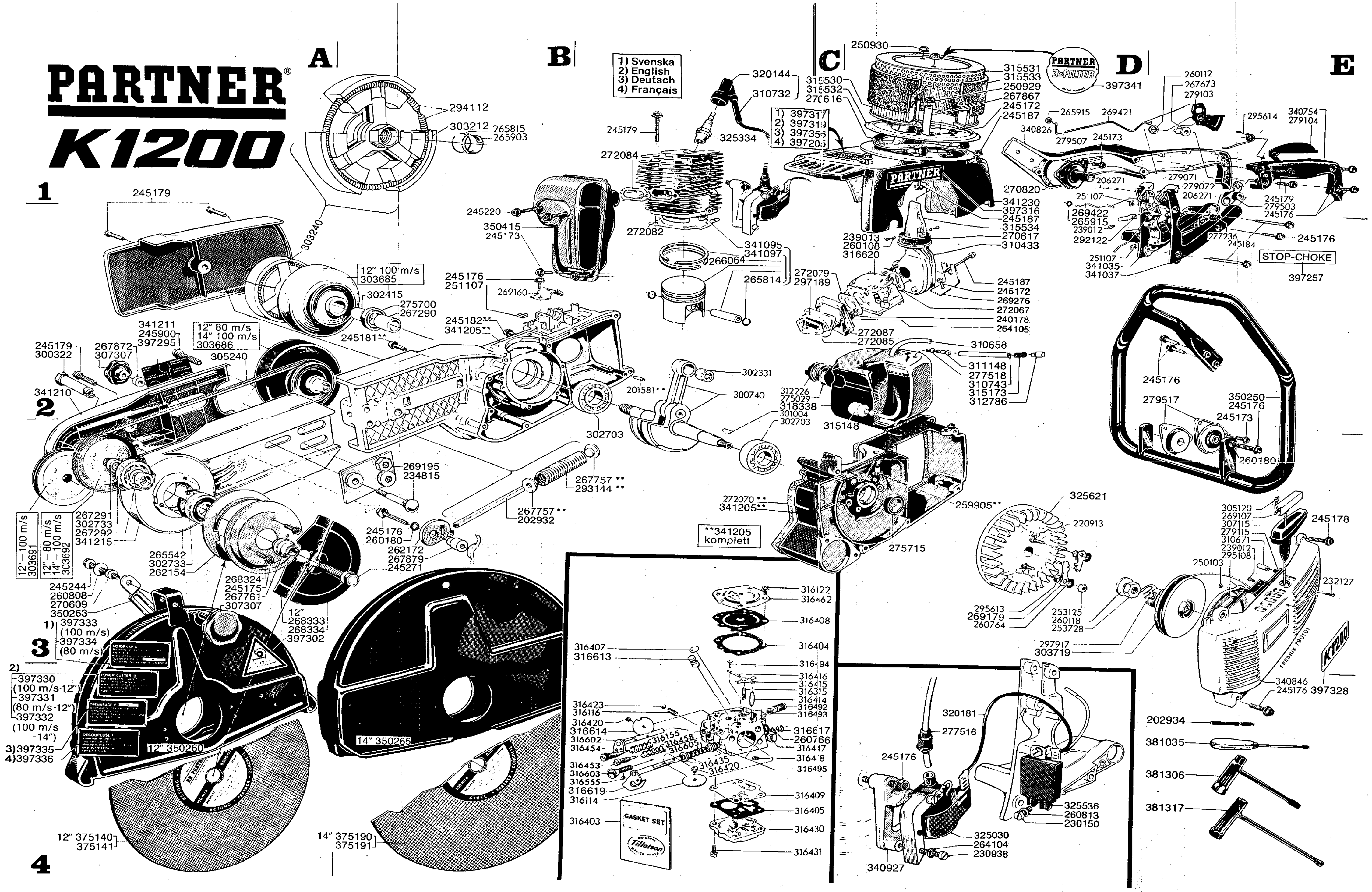


AB PARTNER
Fack, S-431 20 Mölndal 1, Sweden

7.01042 10.000 8.79

9538 Skandia-Tryckeriet, Göteborg

PARTNER K1200



nr.	pos.	nr.	pos.	nr.	pos.
201581	c2	272082	c2	316430	c4
202932	b3	272084	c1	316431	c4
202934	e4	272085	d2	316435	c4
206271	e1	272087	d2	316447	c4
220913	d3	275029	c2	316453	c4
230150	d4	275700	b2	316454	c4
230938	d4	275715	d3	316458	c4
232127	e3	277236	e2	316462	c3
234815	b3	277516	d4	316492	c4
239012	d2 e3	277518	d2	316493	c3
239013	d2	279071	e1	316494	c4
240178	d2	279072	e1	316495	c4
245172	d1 d2	279103	e1	316555	c4
245173	b2 d1	279104	e1	316602	c4
245175	a3	279115	e3	316603	c4
245176	b2 d4	279503	e1	316605	c4
245178	e3	279507	d1	316613	c3
245179	a2 c1	279517	e2	316614	c4
245181	b2	292122	d2	316617	c4
245182	b2	293144	c3	316619	c4
245184	e2	294112	b1	316620	d2
245187	d1 d2	295108	e3	318338	c2
245220	b2	295613	d3	320144	c1
245244	a3	295614	e1	320181	d4
245271	b3	297189	c2	325030	d4
245900	a2	297917	d3	325334	c1
250103	e3	300322	a2	325536	d4
250929	d1	300740	c2	325621	d3
250930	d1	301004	c2	340754	e1
251107	b2 d1	302331	c2	340826	d1
253125	d3	302415	b2	340846	e4
253728	d3	302703	c2 c3	340927	d4
259905	d3	302733	a3	341035	d2
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260112	e1	303240	a2	341095	c2
260118	d3	303685	b2	341097	c2
260180	b3 e3	303686	a2	341205	b2 c3
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264105	d2	310433	d2	350265	b4
265542	a3	310658	d2	350415	b2
265814	c2	310671	e3	375140	a4
265815	b1	310732	c1	375141	a4
265903	b1	310743	d2	375190	b4
265915	d1	311148	d2	375191	b4
266064	c2	312226	c2	381035	e4
267290	b2	312786	d2	381306	e4
267291	a3	315148	c2	381317	e4
267292	a3	315173	d2	397204	c1
267673	e1	315530	d1	397205	c1
267757	b3 c3	315531	d1	397257	e2
267761	a3	315532	c1	397295	a2
267867	d1	315533	d1	397302	a3
267872	a2	315534	d2	397316	d1
267879	b3	316114	c4	397317	c1
268324	a3	316116	c4	397328	e4
268333	a3	316122	c3	397330	a4
268334	a3	316155	c4	397331	a4
269107	e3	316315	c4	397332	a4
269160	b2	316403	c4	397333	a4
269179	d2	316404	c3	397334	a4
269195	b3	316405	c4	397335	a4
269276	d2	316407	c3	397336	a4
269421	d1	316408	c3	397341	d1
269422	d1	316409	c4	397356	c1
270609	a3	316414	c4		
270616	c1	316415	c4		
270617	d2	316416	c4		
270820	d1	316418	c4		
272067	d2	316420	c4		
272070	c3	316423	c4		

279935 Packningssats
Set of gaskets
Dichtungssatz
Jeu de joints

711142. 5.000. 1.79
910 Skandia-Tryckeriet, Göteborg

H.K PORTER INC.

Hydraulic Rescue Kit (PK-4) Ansul Part No. S-52536

RK0004

Hydraulic RESCUE KIT

OPERATION and MAINTENANCE Manual

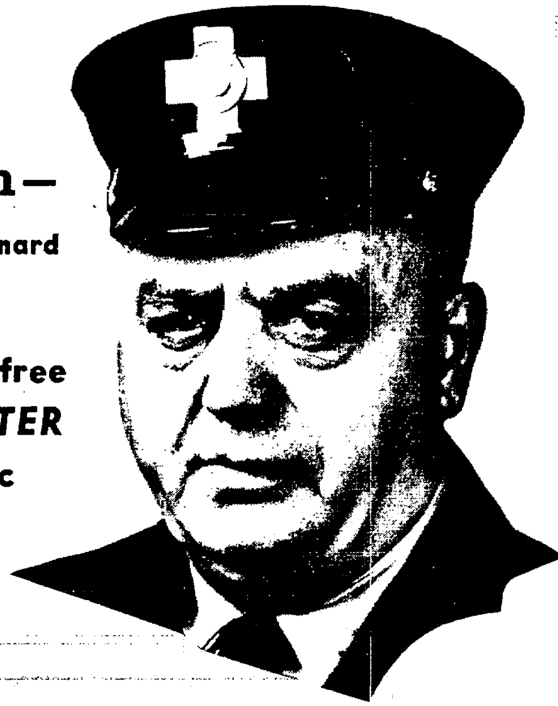
No. A128

H. K. PORTER, INC.
SOMERVILLE, MASSACHUSETTS 02143

A Message from—

Edward S. "Sparky" Leonard
(Retired)

"Believe me! You can free trapped victims *FASTER* with this P-F Hydraulic Rescue Kit."



. . . and, when Mr. Leonard says *"Faster,"* he speaks with authority. His 32 years experience with the Boston Fire Department Rescue Squad puts him in a position to know that speed is the prime necessity in any phase of rescue work.

The P-F Hydraulic Rescue Kit contains attachments that will take care of just about EVERY emergency. More than three years of actual at-the-scene use proves this fact. It is a practical, working Kit, simple and easy to operate — compact yet complete. It can be taken anywhere a man can go as it is easily portable. It operates independently of outside power sources. The 10 ton Hydraulic Jack produces all the power necessary to meet every rescue emergency.

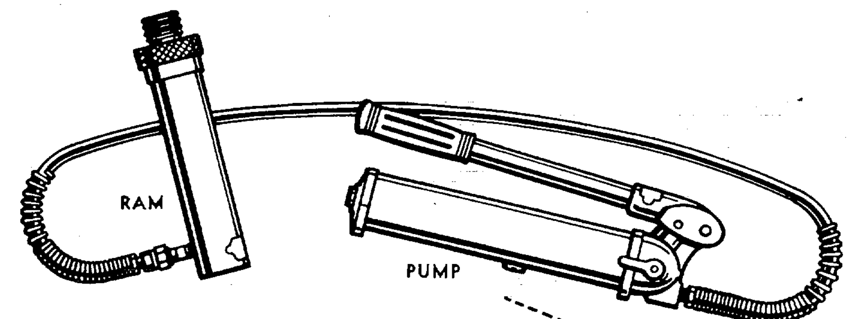
When seconds count — when they may mean the difference between life and death — when they can alleviate human suffering, you can DEPEND on the P-F Hydraulic Rescue Kit to do its work and do it well.

INDEX

THE *POWER* SOURCE...

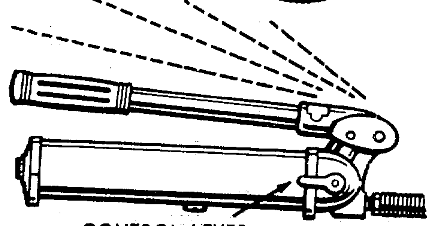
ALL THE POWER YOU *NEED* TO MEET EVERY EMERGENCY

The P-F Rescue Kit is powered by the fast-action P-F 10 Ton, Remote Control Hydraulic Jack. This fast operating power source delivers ALL the power that is necessary for ANY rescue operation. In situations where every second counts, the fewer pump strokes required for full extension of the ram can well mean the difference between life and death.



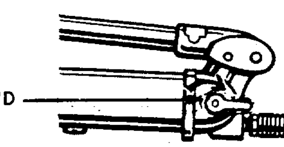
HOW TO OPERATE THE PUMP

Pump can be operated in horizontal, vertical (hose-end down) or any angle position. Remote control, plus extra long hose, permits pump to be used at a safe distance from the rescue operation when protection of the operator is involved, or close up to victim when necessary.



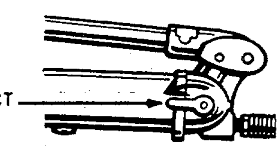
TO EXTEND RAM

Turn Control Lever on Pump one-half turn clockwise or toward the hose end. Operate Pump Handle to extend Ram to desired length.



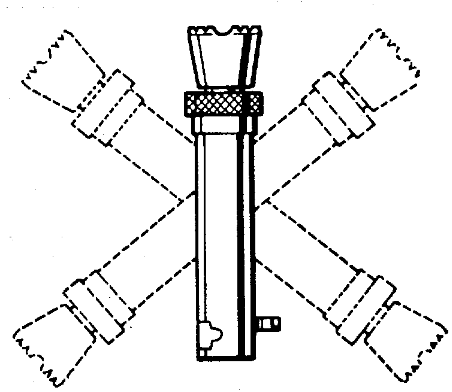
TO RETRACT RAM

No pumping is necessary to retract Ram — another time saving feature which allows quick changes of hook-ups. Merely turn the Control Lever one-half turn counter clockwise or away from hose end, and ram retracts itself. The Control Lever gives you micro-control of the Ram at all times and enables you to stop it at any desired point and hold it there.

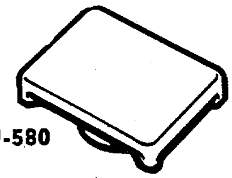


ALL POSITION RAM

The P-F Hydraulic Ram works in ALL POSITIONS through 360° — always ready, in any position, to pinpoint ten tons of pressure wherever needed. It will even work upside down.



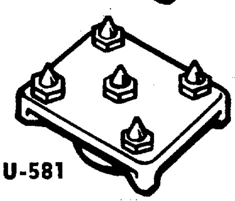
ATTACHMENTS . . .



BU-580

BU-580 FLAT PUSH PLATE

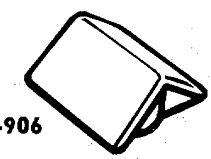
A flat-surfaced Push Plate that can be used either as a Ram Base or on end of Ram Piston, whenever a wide, flat, secure pushing surface is required.



BU-581

BU-581 CLEATED PUSH PLATE

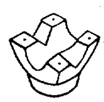
Five pointed cleats give a positive anchor in wood, dirt, asphalt or any other soft material. Eliminates the necessity for notching trees or timbers with axe or saw to provide a flat anchoring surface. Use on either end of ram as needed.



BU-906

BU-906 V PUSHING CAP

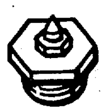
The 90° angle provides positive anchorage in corners or angles where flat plate would not fit. Also gives concentration of power for specific operations, such as diagonal pushing. Use on either end of ram as needed.



BU-913

BU-913 HEAVY DUTY V NOTCH CAP

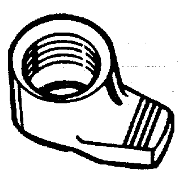
Use as a base for holding jack in position when pushing front or rear cross members into alignment.



BU-586

BU-586 CLEATED RAM BASE

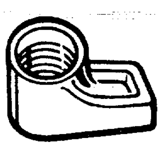
Steel cleat in center anchors ram securely in soft materials. When anchoring in trees, poles, timbers, or brick walls, no time is wasted in notching to provide flat anchoring surface because cleat holds securely. Use on bottom end of ram. When used with BU-581, the base acts as a pivot to insure full bearing surface.



BU-904

BU-904 JACK SPREADING TOE

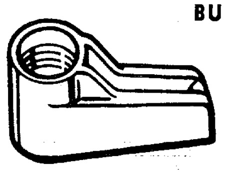
Screws on Ram Cylinder. Toe Plate can be used in a position to combine with BU-905 Jack Piston Spreadi Toe (below) for use in spreading or lifting operations.



BU-905

BU-905 JACK PISTON SPREADING TOE

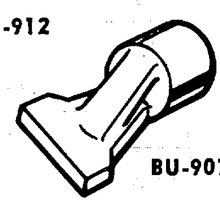
Screws on Ram Piston. Toe Plate can be used in any position to combine with BU-904 Jack Spreading Toe (above) for use in spreading or lifting operations.



BU-912

BU-912 LONG SPREADING TOE

Screws on Ram Piston. Toe Plate can be used in any position to combine with BU-905 Jack Spreading Toe (above) for use in spreading operations.



BU-907

BU-907 OFFSET SPREADING TOE

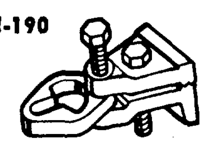
Directs power to the side for offset pushing. Particularly useful in narrow openings. Offset permits positive alignment when pushing at a 90° angle. Use on either end of Ram.

ATTACHMENTS

BU-190 BITE-TITE CLAMPS (2 in kit)

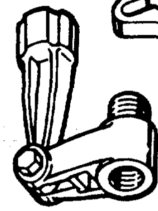
An exclusive feature of the P-F Hydraulic Rescue Kit. Bite-Tite Clamps have serrated jaws for positive gripping of metal and will not slip off during the pull operation. They are easily and quickly attached by only finger pressure on two bolts and will hold the thinnest metal without slipping. Reversible jaws enable clamps to be used over raised edges when necessary. Used with BU-287 and BU-288. Use ¾" wrench on bolts for positive holding of clamps.

BU-190



BU-238 PULL ARM ASSEMBLY

For use with Pull Guide (BU-775) in all pulling and clamping operations. Attach SL-1 plus tubing to get correct span. See pages 16 and 18.

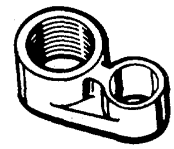


BU-238

BU-775 PULL ARM GUIDE

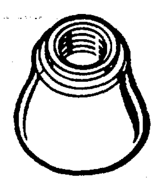
Attaches to Ram Cylinder for use with Pull Arm Assembly (BU-238) in all pulling and clamping operations. See pages 16 and 18.

BU-775



BU-705 AND BU-700 RUBBER ANCHORS

A flat-topped rubber anchor that can be used either on Ram Bottom or on Ram Piston to provide maximum slip resistance when jacking against smooth, slick, wet or glassy surfaces.

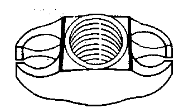


BU-700
BU-705

BU-910 SMALL CHAIN ATTACHMENT

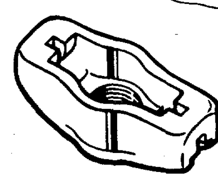
Used in conjuction with Chain Pull Collar (BU-287). Chain and Clamps — Attaches to Ram Piston to guide Chain in all pulling operations.

BU-910



BU-287 CHAIN PULL COLLAR

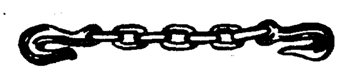
Screws on Ram Cylinder for use with Chain and clamps in all pulling operations.



BU-287

BU-931 SHORT CHAIN WITH 2 HOOKS

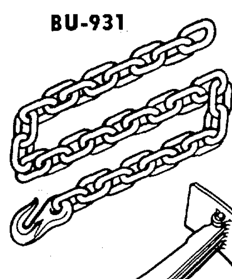
For quickly connecting two lengths of chain together for additional length when needed.



BU-931

BU-911 CHAIN (2 in kit)

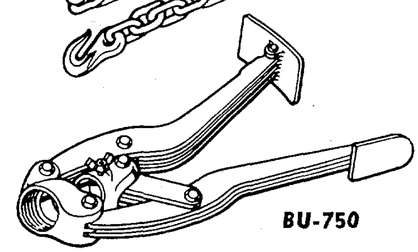
For use with Chain Pull Kit. Two 6' long — ⅜" diameter chains enable operator to make any hook-up required. In heavy duty pulling operation, the Chain Pull Kit is twice as fast and more flexible than tubing hook-ups. Chain hook-ups are self-aligning to right span. With tubing, time is wasted in adjusting pieces to get right length of span.



BU-911

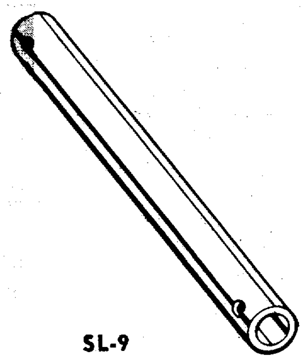
BU-750 SPREADER

Not an "extra" but a standard with the P-F Hydraulic Rescue Kit. Probably the most versatile attachment in the kit, the spreader closes to 1½" to allow entrance into narrow areas, yet has a powerful 16" spread. Attaches to ram in seconds and gets into places where a jack and other attachments cannot be used.



BU-750

ATTACHMENTS . . .



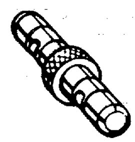
SPEEDLOK® TUBING — A P-F Exclusive

P-F Speedlok Tubing enables the operator to make lightning fast assemblies. Precision machined from cold rolled, high carbon steel. Faster and easier to assemble than threaded tubing. No threads to become worn or damaged — no time lost in aligning tubing for screwing together. Pieces snap together for PUSHING — pins snap in for PULLING. 3 times as fast and twice as strong as threaded pipe. Use these pieces of tubing in any combination — at either end or both ends of ram to get desired length of hook-up. It is possible to hook up for a 7 foot span when all tubing extensions are used with the Ram and an attachment on each end of span.

Equipment consists of:

1 SL-20	20" extension	1 SL-8	8" extension
1 SL-16	16" extension	1 SL-6	6" extension
1 SL-12	12" extension	1 SL-4	4" extension

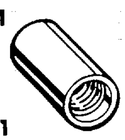
SL-9



SL-9 TUBING CONNECTORS (5 to a kit)

These connectors enable you to use all of the tubing extensions at one time, if needed for an extremely long span. All connectors have holes for inserting pins when tubing is used in pulling operations. Use one connector between each two pieces of tubing.

BU-731



BU-731 HEAVY DUTY COUPLING

For use in making threaded connections.

Note — BU-725 and BU-731 can be used to adapt to 1¼" Standard Pipe in emergencies.

SL-1



SL-1 MALE ADAPTERS (3 to a kit)

Screws into Ram bottom and BU-238 for using Speedlok Tubing and Attachments.

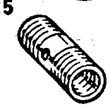
SL-2



SL-2 FEMALE ADAPTER

Screws onto Ram Piston thus adapting it to Speedlok Tubing and Attachments.

BU-725



BU-725 SHORT NIPPLE

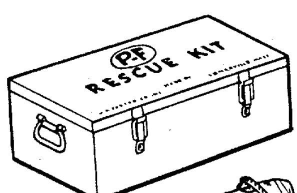
Screws into ram base for using threaded attachments.

SL-7



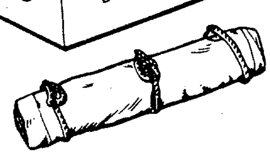
SL-7 CONNECTING PINS (12 to a kit)

To be used in all *pulling* operations using tubing. Simply snap connectors into holes in tubing. It is not necessary to use these pins in pushing or lifting hook-ups.



RK-98 METAL BOX

This durable all metal box is designed to conveniently hold the RK-4 Rescue Kit. On Rescue Trucks, Apparatus, Cruisers etc. Gray enamel finish. Size 22¾"x12¼"x8½".

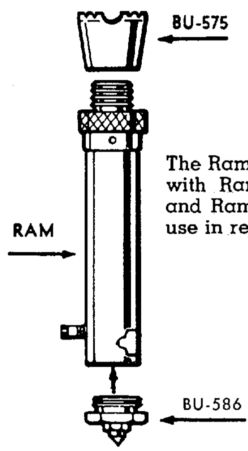


RK-99 CANVAS CARRYING CASE

Heavy canvas with three tie ropes. Exceptionally useful for carrying necessary pieces over ladders, underground etc.

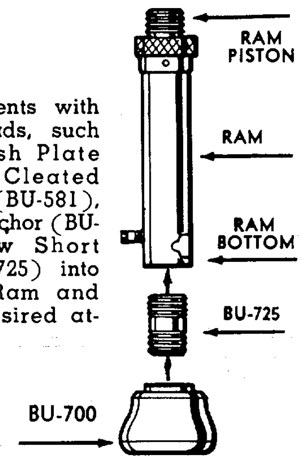
HOW TO HOOK-UP ATTACHMENTS

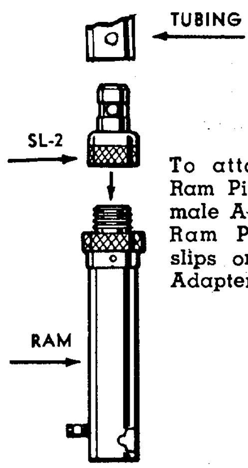
The 10 Ton Hydraulic Jack is the Power Source of the P-F Hydraulic Rescue Kit which enables an operator to work anywhere, independent of all other power sources. The Ram — the working end of the Power Unit — transmits the 10 tons of hydraulic pressure through hundreds of different and varied hook-ups for pulling, pushing, lifting, spreading and pressing operations.



The Ram in its basic form with Ram Cap (BU-575) and Ram Base BU-586 for use in restricted spaces.

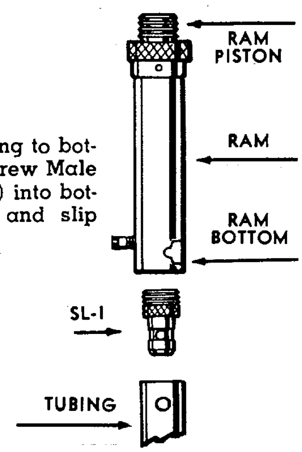
For attachments with female threads, such as Flat Push Plate (BU-580), Cleated Push Plate (BU-581), of Rubber Anchor (BU-700), screw Short Nipple (BU-725) into bottom of Ram and then use desired attachment.

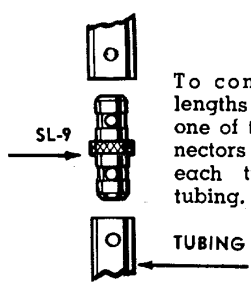




To attach tubing to Ram Piston, screw Female Adapter (SL-2) to Ram Piston. Tubing slips on male end of Adapter.

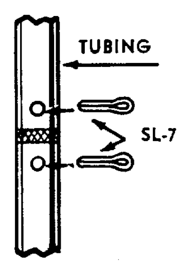
To attach tubing to bottom of Ram screw Male Adapter (SL-1) into bottom of Ram and slip on Tubing.





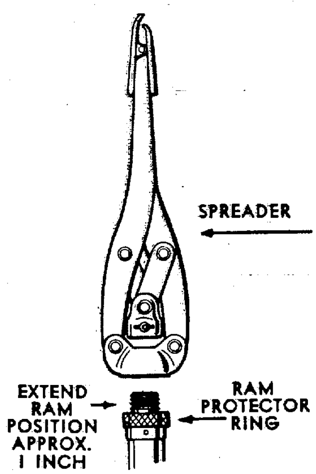
To connect various lengths of Tubing, use one of the Tubing Connectors (SL-9) between each two lengths of tubing.

When Tubing is hooked up for *pulling* operations, align holes in Tubing with Adapters and insert Connecting Pins (SL-7).

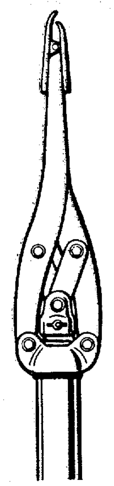


HOW TO HOOK-UP ATTACHMENTS

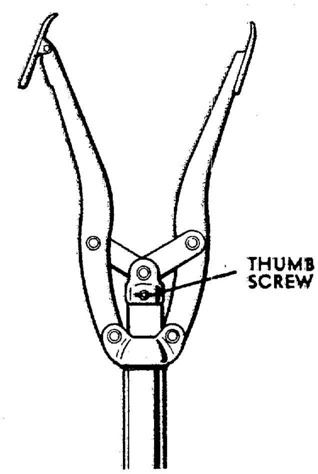
ASSEMBLING SPREADER TO RAM



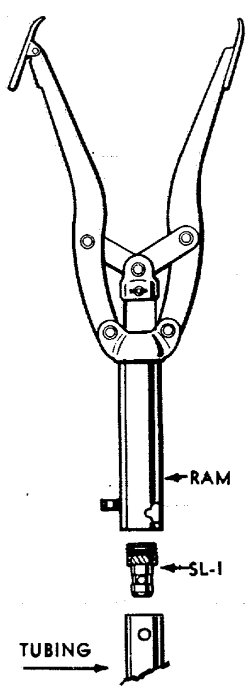
Remove Ram Protector Ring from top of ram. Extend ram piston approximately 1" and screw Spreader (BU-750) on to Ram Cylinder.



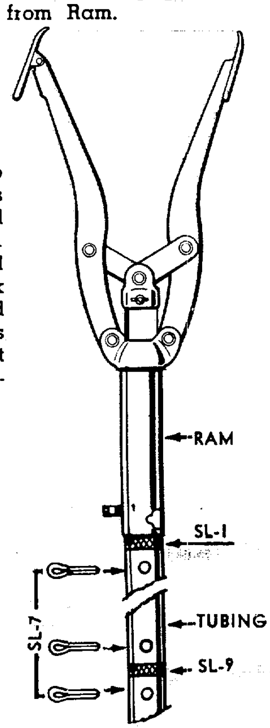
After Spreader is screwed on to Ram Cylinder, *loosen Thumb Screw on Spreader* and jack out Ram Piston until it seats in socket of Spreader.



Tighten Thumb Screw on Spreader so that Spreader will retract when pressure is released. Be sure to loosen thumb screw before removing Spreader from Ram.

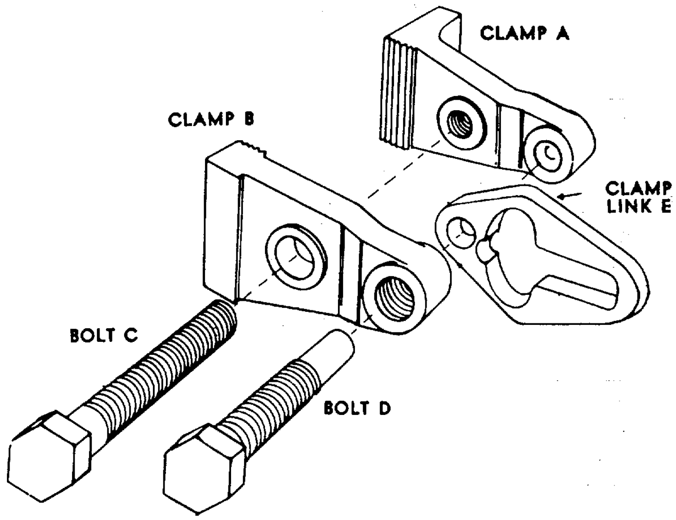


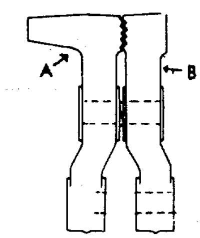
When it is necessary to use spreader beyond arm's length or in a limited working area, screw SL-1 into bottom of Ram and attach lengths of Speedlok Tubing to get desired "reach." Insert SL-7 Pins in Tubing holes to prevent unit from becoming disconnected while in use.



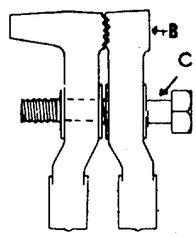
HOW TO HOOK-UP ATTACHMENTS

ASSEMBLING BITE-TITE CLAMPS

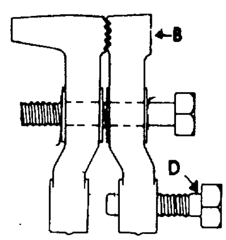




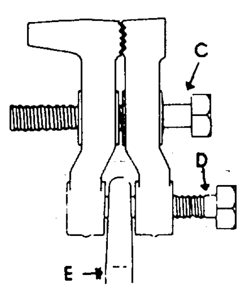
Put jaws A and B of Bite-Tite Clamps (BU-190) together as shown above.



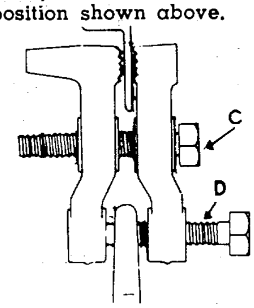
Insert Bolt C (Longest Bolt) in top hole and screw into jaws until Bolt is in position shown above.



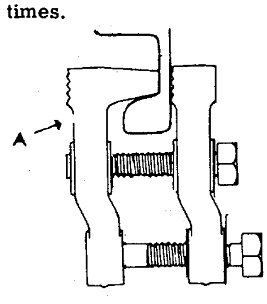
Insert Bolt D in lower hole in Clamp B and turn five times.



Insert Clamp Link E on Bolt D and then, holding jaws together, draw up Bolt C first and then Bolt D.



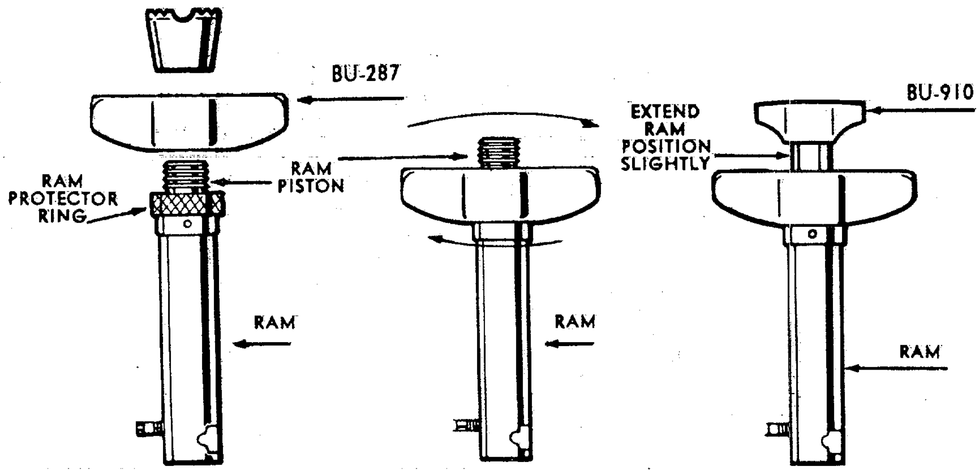
To attach Clamp to work, loosen Bolt C to provide sufficient opening for work to fit between jaws. Screw in Bolt C until Clamp is tight. CAUTION: Bolt D must remain loose. After Bolt C is tight, then screw in Bolt D to lock clamp on work. Jaws of clamps should be parallel for best holding power.



For working around channels or raised edges reverse Jaw A as shown above and proceed as above.

HOW TO HOOK-UP ATTACHMENTS

ASSEMBLING CHAIN PULL KIT



Remove Ram Cap and Ram Protector Ring from Ram Cylinder.

Screw Chain Pull Collar (BU-287) on to Ram Cylinder. Be sure threaded section of center hole is next to Ram Piston.

Extend Ram Piston slightly and screw Small Chain Attach. (BU-910) on to head of Ram Piston.

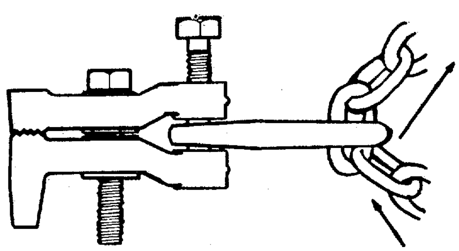


FIG. A

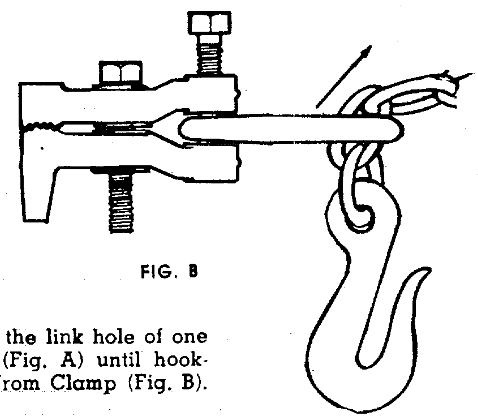
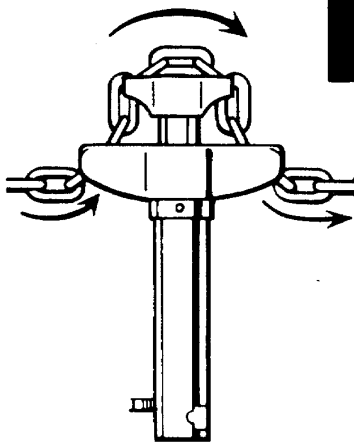


FIG. B

Pass small end of chain through the link hole of one of the BU-190 Bite-Tite Clamps, (Fig. A) until hook-end of Chain is several inches from Clamp (Fig. B).

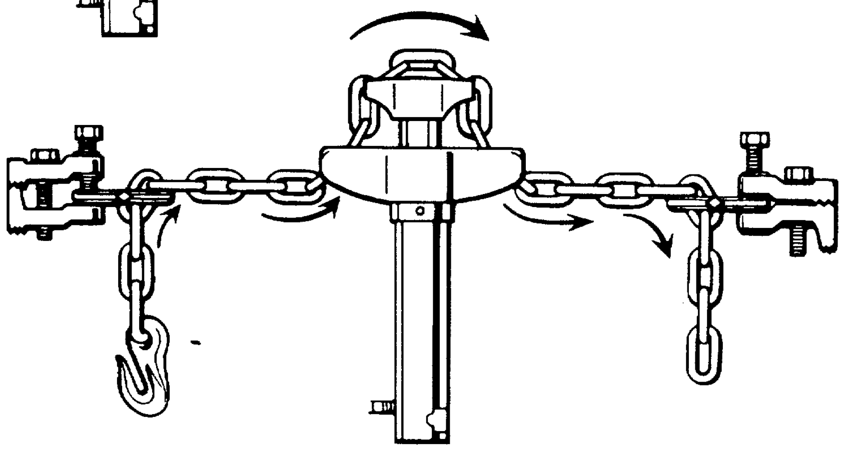
(CONTINUED ON NEXT PAGE) ⟶

HOW TO HOOK-UP ATTACHMENTS



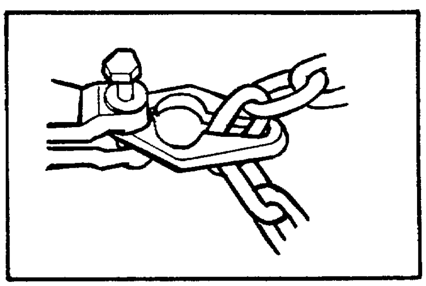
ASSEMBLING CHAIN PULL KIT — CONT.

Next thread open end of Chain *UP* through Chain Pull Collar (BU-287) over Small Chain Attachment (BU-910) and down through other side of Chain Pull Collar. Position Ram as closely as possible midway between Clamps for normal use.



Next thread open end of Chain (BU-911) into other Bite-Tite Clamp (BU-190). Retract Ram Piston and take up slack. Lock Chain in Bite Tite Clamp Links. Close Pump Lever and start jacking operation.

When Ram Piston is fully extended and further pull is required, retract Piston to same position as at start of pull, take up slack in Chain and repeat operation.



Be sure to *LOCK* links of Chain (BU-911) in slots of Clamp Links as shown above before starting pulling operations.

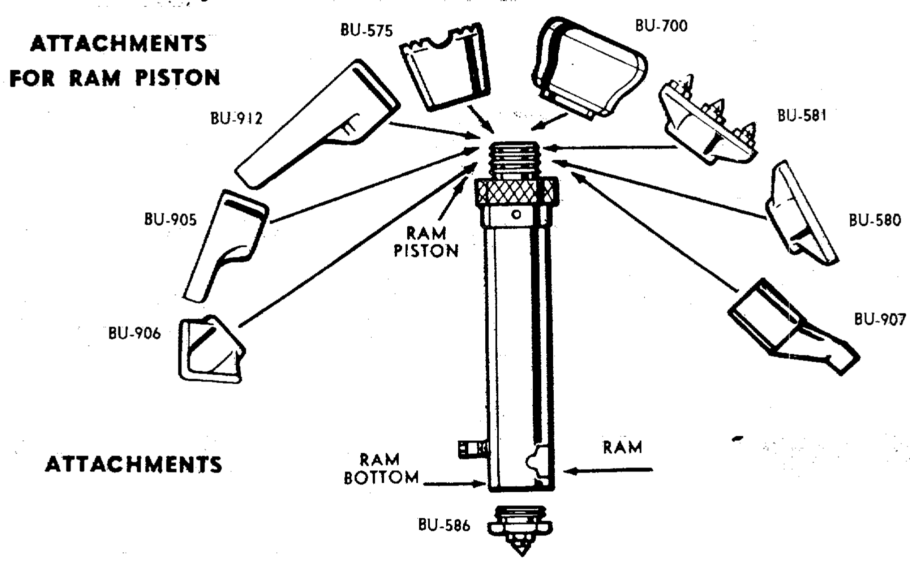
For each inch of Ram travel the Chain travels TWO inches which gives longer pull without having to change the hook-up, total pull travel of 11½" without changing hook-up.

Bite-Tite Clamps will not slip off during pulling operations as the more pull that is exerted, the lighter they hold. They attach and detach in a matter of seconds.

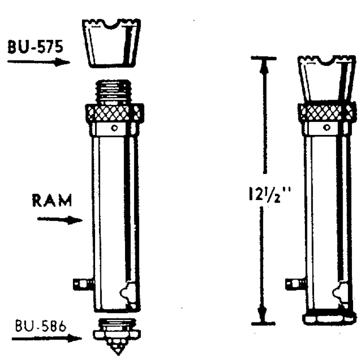
P-F Pull Kits give positive pulling operations in quicker time. Ram may be located in any desired place on chain so that Ram is always in open area away from interference.

PUSHING and LIFTING CONFINED AREAS

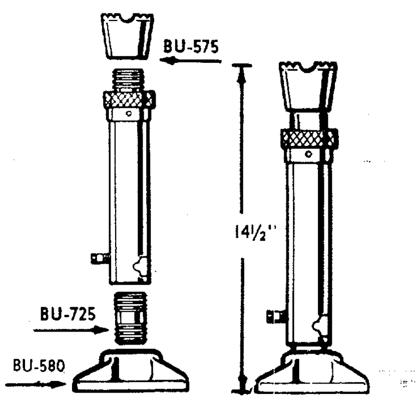
The P-F Hydraulic Rescue Kit offers many different combinations of attachments to do every kind of pushing or lifting operation efficiently and quickly. The illustrations below show the attachments that can be screwed directly on the Ram Piston to quickly release victims of automobile accidents — pushing up panels, tops, doors, seats, steering posts and motors; in collapsed buildings — lifting beams and debris; in moving material in excavations and cave-ins; in street car, train, plane and industrial accidents. Shown below are attachments for working in confined areas.



All of the above attachments may also be used on the bottom of the ram by screwing the BU-725 Short Nipple into the ram bottom.

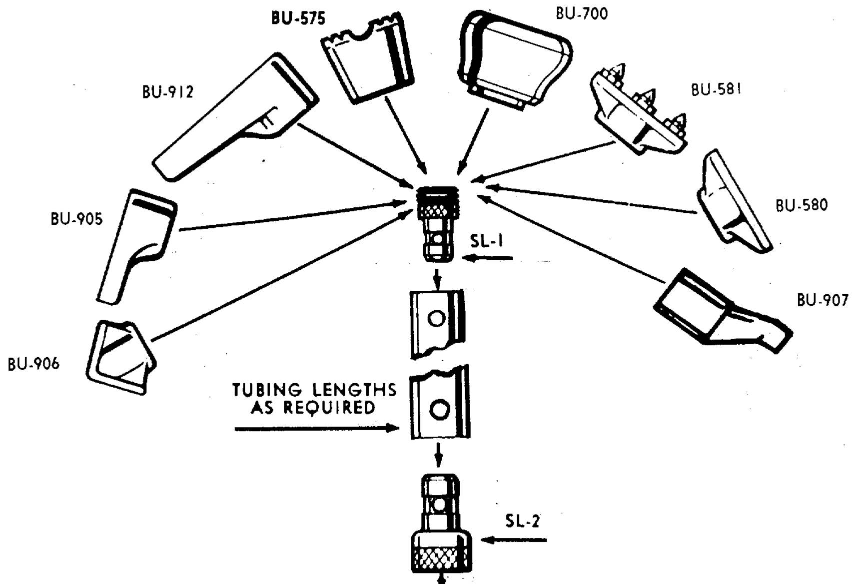


Ram can be used "as is" with Ram Cap (BU-575) attached to Piston and Ram Base BU-586 for use in restricted areas. Retracted height 12½". Extended height 18".

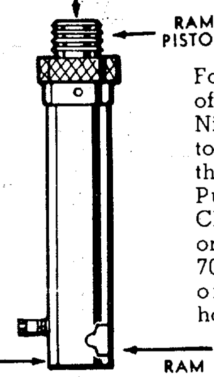


When it is necessary to operate with a broader base, add either the Flat Push Plate (BU-580) or the Cleated Push Plate (BU-581). These are connected to bottom of Ram by using the Short Nipple (BU-725).

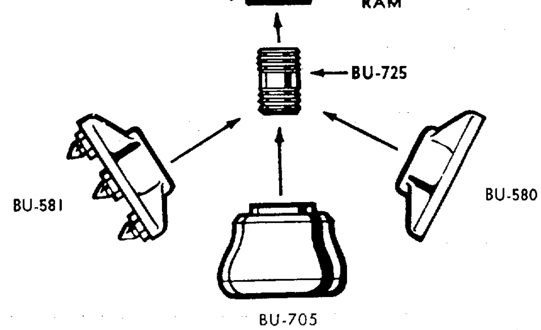
PUSHING and LIFTING



When it is necessary to extend the area of pushing or lifting beyond the length of the Ram, lengths of Tubing may be added to increase scope of operations. First attach the Female Adapter (SL-2) to head of Ram Piston. Then add Tubing lengths as required. Next add Male Adapter (SL-1) to which any of the various attachments in the above diagram may be added.

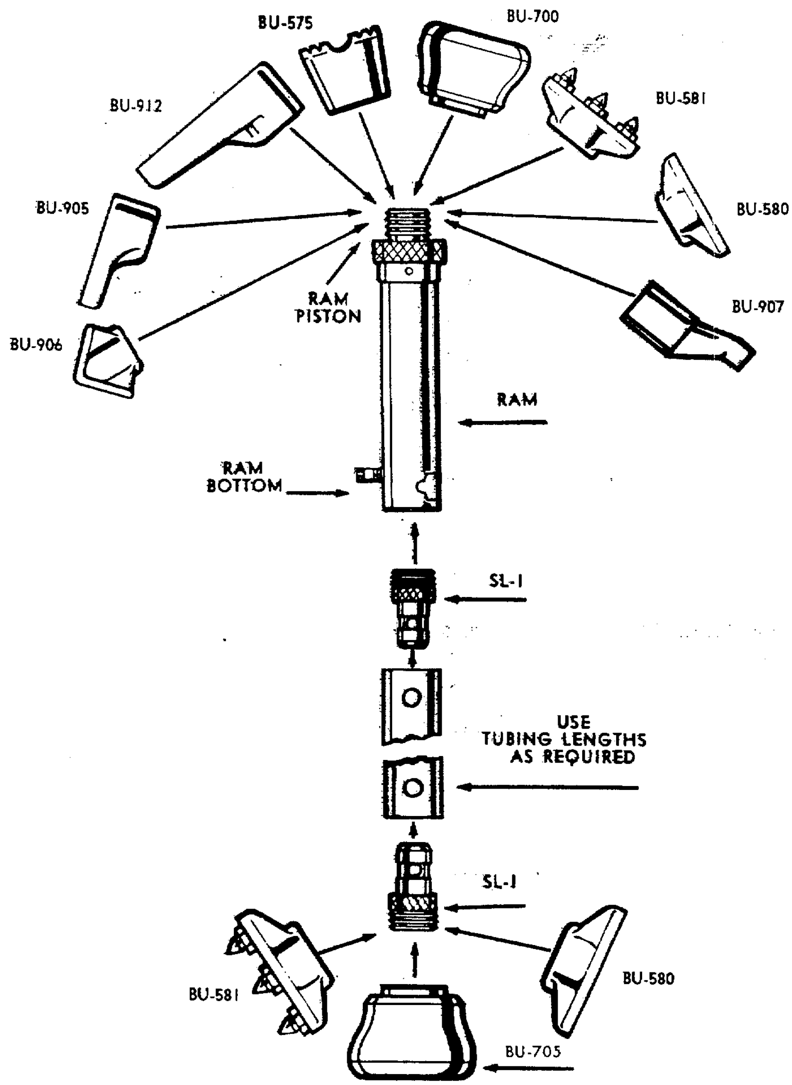


For a firm base on any kind of surface, screw the Short Nipple (BU-725) into the bottom of Ram Cylinder. It is then possible to add the Flat Push Plate (BU-580), the Cleated Push Plate (BU-581) or the Rubber Anchor (BU-700), depending on the type of material to which the hook-up is to be anchored.



Any of the working heads shown at top of illustration may be attached to Ram bottom by first inserting the BU-725 Short Nipple. Working heads at bottom of illustration may also be attached to top of Ram Piston.

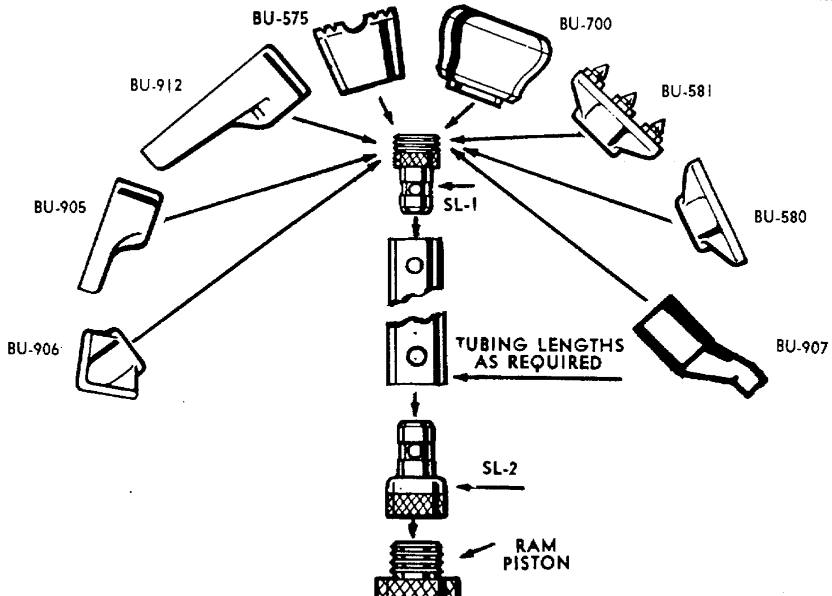
PUSHING and LIFTING



In some pushing or lifting operations it may be necessary to have the Ram at the head of the Tubing hook-up instead of at the base. This is accomplished by screwing a Male Adapter (SL-1) into Ram bottom, then adding Tubing as required with the Male Adapter (SL-1) at end of Tubing, and then attaching any of the working heads as shown in the diagram above.

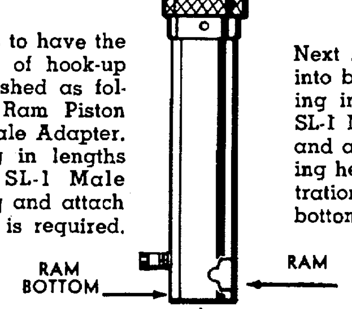
Attachments shown at top of illustration may also be used at bottom and vice versa. When it is necessary to have Ram in the middle of hook-up, attach SL-2 to Ram Piston and SL-1 to Ram bottom. Add tubing to each end to get desired length. Then insert SL-1 Pins in Tubing at both ends of hook-up. Use desired working heads at each end.

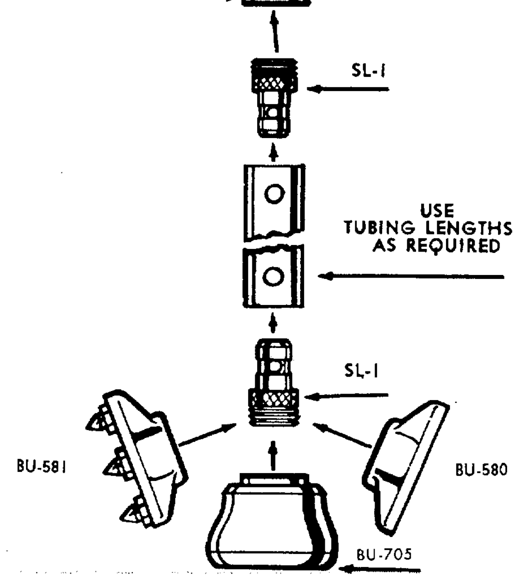
PUSHING and LIFTING



When it is desirous to have the Ram in the center of hook-up it can be accomplished as follows: Starting at Ram Piston screw on SL-2 Female Adapter. Next attach tubing in lengths required. Insert SL-1 Male Adapter into tubing and attach working head that is required.

Next screw SL-1 Male Adapter into bottom of Ram. Attach tubing in lengths required. Insert SL-1 Male Adapter into Tubing and attach desired base. Working heads shown at top of illustration may also be used on bottom of Ram and vice versa.





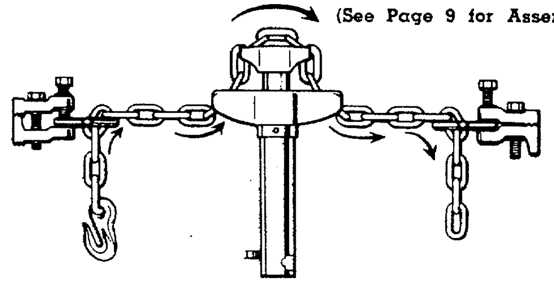
PULLING OPERATIONS

The P-F Hydraulic Rescue Kit offers a choice of two entirely different methods of pulling operations, depending on the type of rescue work to be done and the working space available. Both methods accomplish quick results through easily assembled hook-ups.

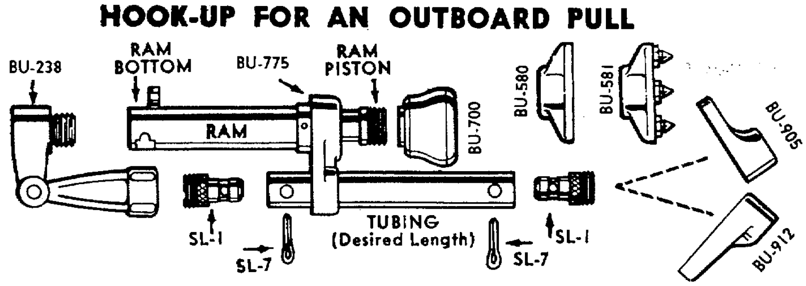
The Pull Kit with Chain, shown in sketches below is indicated for most types of accidents, but when it is necessary to work in a very small area — such as pulling together pickets on an iron fence or pressing objects together, there is the additional choice of the Outboard Pull, shown below.

HOOK-UP FOR USING THE CHAIN PULL KIT

(See Page 9 for Assembly)

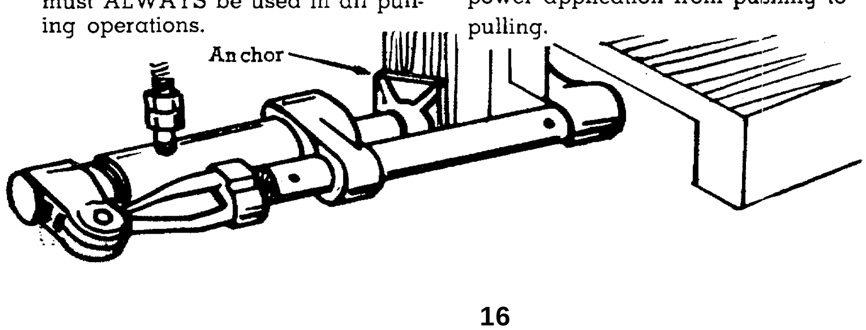


HOOK-UP FOR AN OUTBOARD PULL

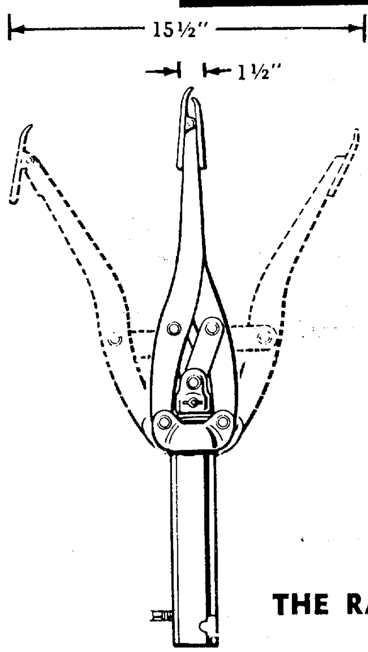


Remove Ram Protector Ring and then screw Pull Guide (BU-775) to Ram Cylinder. Next, attach choice of Flat Push Plate (BU-580), Cleated Push Plate (BU-581), or Rubber Anchor (BU-700) to Ram Piston. Next screw Pull Arm Assembly (BU-238) into bottom of Ram. Screw a Male Adapter (SL-1) into Pull Arm Assembly. Tubing of desired length passes through Pull Guide to connect with Pull Arm Assembly. Insert Connecting Pins (SL-7). CAUTION: Connecting Pins must ALWAYS be used in all pulling operations.

Additional lengths of Tubing may be added to reach any desired length but pins MUST be inserted between each two lengths of Tubing and between Tubing and SL-1 Connectors. Finish off end of Tubing with Male Adapter (SL-1) and attach either Long Spreading Toe (BU-912) or Jack Piston Spreading Toe (BU-905). This set-up, as shown in diagram below REVERSES power application from pushing to pulling.



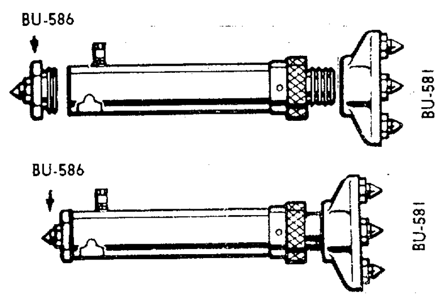
SPREADING OPERATIONS



THE P-F SPREADER (BU-750)

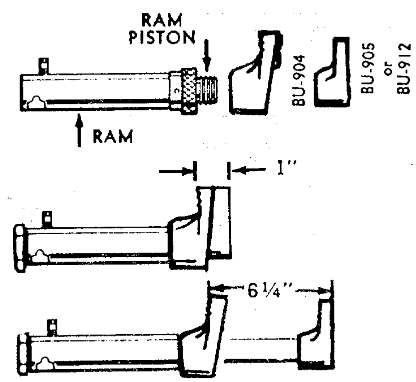
This powerful attachment is one of the most versatile and useful attachments in the P-F Hydraulic Rescue Kit. (See method of attaching on Page 8.) Its use is indicated whenever there is a space problem, as the jaws close to only 1½" giving entry in very narrow spaces, yet open to a full 15½" spread. It has many uses, such as opening doors in buildings, cars and planes and is particularly recommended for freeing victims who are pinned in automobiles where it would be impossible to use the Ram and Attachments. Tubing may be added to bottom of Ram when it is necessary to use Spreader beyond arm's length or in limited working area. (See page 8.)

THE RAM SPREADING OPERATION



For Persons Caught In Trees Etc.

When used against trees, timbers or poles and it is necessary to push against another soft material, a firmly anchored non-slip operation may be obtained by using the Cleated Push Plate (BU-581) on Ram Piston and the Cleated Ram Base (BU-586) on bottom of Ram. This hook-up eliminates the necessity of notching trees or poles to give a flat surface to jack against. See illustration Page 20.

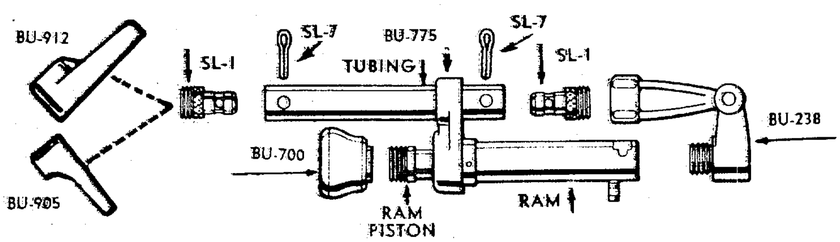


For Elevator Accidents

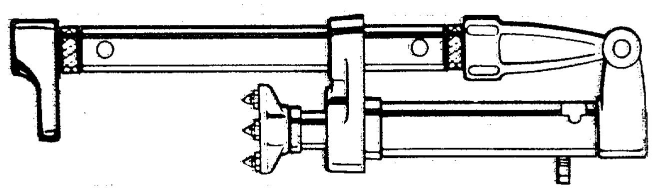
If work is restricted to very cramped quarters, spreading operations are easily accomplished by first removing the Ram Protector Ring from the Ram and then screwing the Jack Spreader Toe (BU-904) to the Ram Cylinder. Next extend Ram Piston two or three pump strokes and screw on the Jack Piston Spreading Toe (BU-905), or Long Spreading Toe (BU-912). This allows an entering wedge of only 1" which can be expanded to 6¼". In this operation the elevator car is not lifted but is pushed back into elevator well. See illustration page 19.

PRESSING OPERATIONS

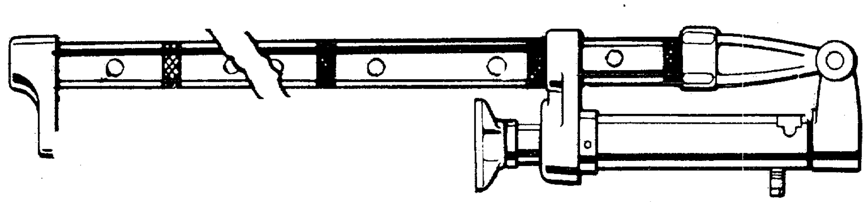
Pressing operations are similar to pulling operations and are used whenever it is necessary to press any two objects together, such as the pickets of an iron fence.



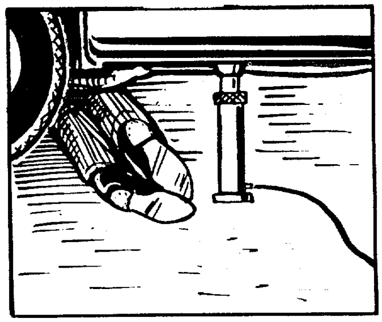
Remove Ram Protector Ring and screw Pull Guide (BU-775) to Ram Cylinder. Screw Pull Arm Assembly (BU-238) into bottom of Ram and add Male Adapter (SL-1) to Pull Arm Assembly. Desired working head should be attached to Ram Piston *BEFORE* tubing of desired length is passed through Pull Guide (BU-775) to connect with Pull Arm Assembly (BU-238). Attach choice of Flat Push Plate (BU-580), Cleated Push Plate (BU-581) or Rubber Anchor (BU-700) to head of Ram Piston. Additional Tubing may be added to extend pressing operation to a distance of 52". Insert Connecting Pins (SL-7). Caution: *Connecting Pins must always be used in pressing operations.*



Any additional required lengths of tubing may be added to tubing in Pull Arm Guide (BU 775) or to Ram Piston but pins must be inserted in holes between each two lengths of Tubing and SL-1 Adapters. Finish off with the Male Adapter (SL-1) and attach either Long Spreading Toe (BU-912) or Jack Piston Spreading Toe (BU-905).



P-F RESCUE KITS OFFER QUICK and EASY HOOK-UPS to TAKE CARE OF EVERY ACCIDENT.



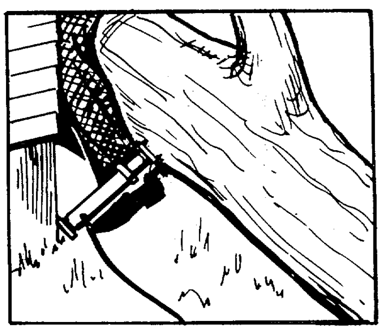
LIFTING

Victim trapped under truck. Necessary to lift vehicle in order to free legs. (See hook-up on Page 12.)



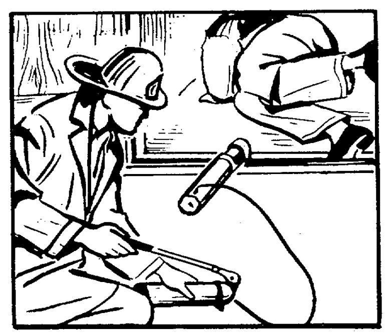
HOLDING

Victim buried under debris of fallen building. Heavy wall has been lifted and is now being held in place to permit rescue workers to recover victim. (See hook-up on Pages 13-14-15.)



PUSHING

Victim wedged between fallen tree and building. Tree is being pushed away. (See hook-up on Pages 12-13-14-15.)

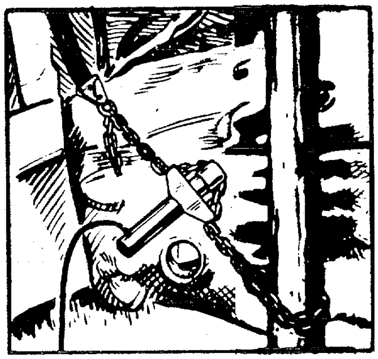


SPREADING

Victim caught in elevator is released by moving elevator back in well. See Page 17.

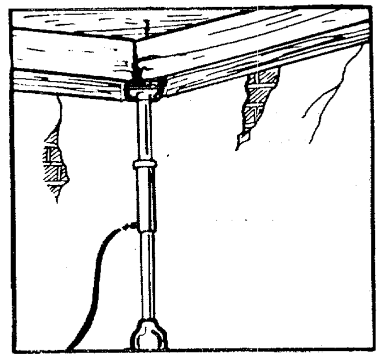
DEPARTMENT NOTES

ONE MAN CAN TRANSPORT, HOOK-UP and USE A P-F RESCUE KIT TO SAVE LIVES.



PULLING

Here the Chain Pull Kit is being used to pull back panel of car to free victims in rear seat. (See hook-up on Page 16.)



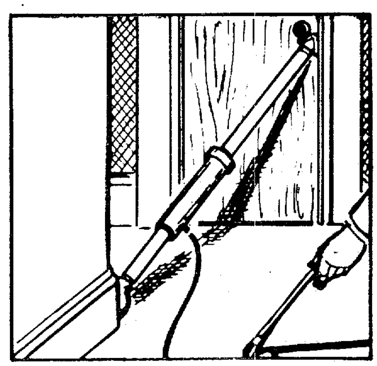
SHORING

P-F Ram with Tubing Extensions being used to keep weak wall from collapsing. (For hook-up see pages 12-13-14-15.)



SPREADING

Spreading crotch of tree to release victim's foot. Cleated Push Plate and Ram Base eliminate notching tree for anchorage. (See hook-up on Page 17.)

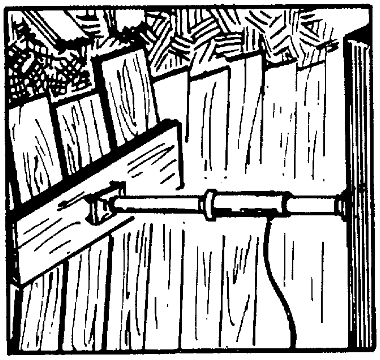


OPENING

Forcing open locked door. (See hook-up on Pages 13-14-15.)

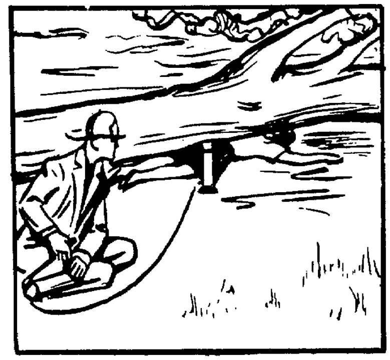
DEPARTMENT NOTES

THERE'S A P-F HOOK-UP POSSIBLE to SOLVE any RESCUE PROBLEM!



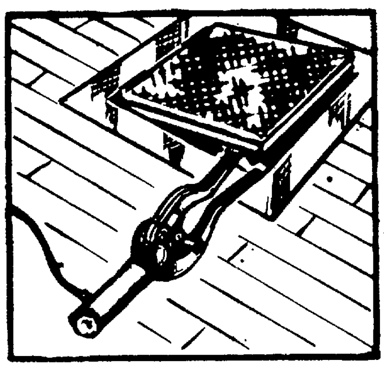
BRACING

Fallen tunnel shaft being braced to allow rescue workers to speed up cave-in rescue. (For hook-up see pages 12, 13, 14.)



LIFTING

Cyclone-felled trees being raised away from accident victim. (For hook-up see pages 12, 13, 14.)



OPENING

Spreader is being used to open metal trap door leading to basement. (For hook-up see page 17.)



TRANSPORTING

P-F Rescue Kits can go anywhere a man can go. They are independent of outside power sources and can be used safely near inflammables where torches cannot be employed. Canvas carrying case permits man to take only essential parts over ladders or into difficult or hazardous locations.

DEPARTMENT NOTES

MAINTENANCE AND CARE OF THE P-F 10 TON HYDRAULIC REMOTE CONTROL JACK.

OIL INSPECTION

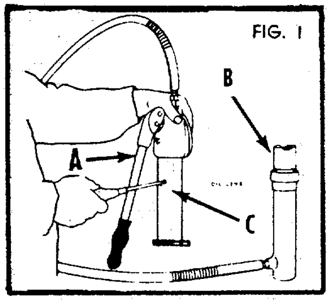


FIG. 1

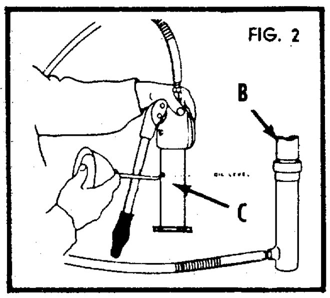


FIG. 2

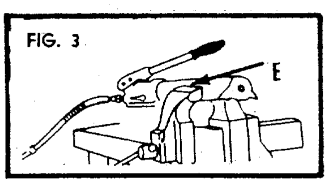


FIG. 3

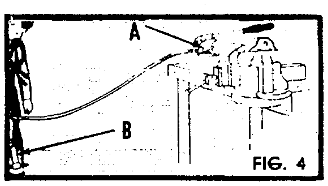


FIG. 4

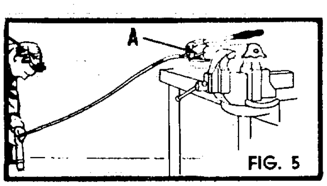


FIG. 5

1. Open Control Lever (A) and fully retract Ram (B) (Fig. 1).
2. Stand Pump on tank end (See Fig. 1), remove Filler Screw (C). If oil flows out of the filler hole (C), no additional oil is needed. CAUTION: DO NOT FILL UNIT WHEN PUMP IS IN HORIZONTAL POSITION.

FILLING INSTRUCTIONS

1. Fully retract ram (B).
2. Stand pump on tank end (Fig. 2) and remove filler screw. (C). Fill pump with P-F Hydraulic Fluid, using oil can, until oil flows out of filler hole. Replace filler screw (C).

BLEEDING INSTRUCTIONS

1. Place pump in vise at slight angle (Fig. 3), so that jaws of vise grip tank, *NOT PUMP HOUSING*. Exert only enough "squeeze" to hold pump in position.
2. With ram (B) in lowest position (Fig. 4), CLOSE Control Lever (A) and fully extend Ram. Hold Ram in this position for 1½ minutes.
3. Turn control level (A) counterclockwise or away from hose end (Fig. 5) and with Ram Piston resting on floor, exert strong, steady pressure on Ram Cylinder so that it is quickly retracted. Be sure that hose is held out straight — THIS IS VERY IMPORTANT — as it allows oil pressure to force any air trapped in Ram or hose back through the pumping system, thus eliminating air pockets.
4. Remove pump from vise and stand pump on tank end (Fig. 1). Remove filler screw (C), allowing excess oil to expel through filler hole. If oil will flow out of filler hole, unit is properly filled. If oil does not flow out, repeat No. 2 under FILLING INSTRUCTIONS.
5. Replace filler screw (C) securely and turn Control Lever clockwise or toward hose end. (A) Operate Pump with full stroke. Ram should extend ⅛" on first stroke. If the Ram will not extend, Pump is air bound and it will be necessary to repeat bleeding instructions.

CAUTION: **For the protection of your P-F Ram, use only Genuine**

P-F HYDRAULIC FLUID

CARE AND PROTECTION OF THE P-F HYDRAULIC RESCUE KIT.

The P-F Hydraulic Rescue Kit has been carefully engineered and manufactured to give trouble-free service and to last for years. It has been thoroughly examined and tested before leaving the factory. It requires a minimum of care and stands up under a maximum of hard usage. Here are a few simple *do's* and *dont's* which will keep it functioning and in good condition.

DO

...Protect the threads on Ram Cylinder. A Protector Ring (BU-576) is furnished and should always be screwed on Ram unless other attachments are being used. Also protect Piston by keeping Ram Cap (BU-575) screwed on when not using other attachments.

...Keep Oil Lines clean. Use every precaution to guard unit against entrance of dirt or other foreign matter which might cause pump failure.

...Use only P-F Hydraulic Fluid. Never use brake fluid or ordinary cylinder oil.

...Provide sufficient clearance. See that hose is clear when ram extends. Avoid wear on hose by keeping it free from obstructions.

...Keep unit away from fire and excessive heat as this will tend to melt sizing in cups and cause leakage. Heat also weakens the hose structure.

...Treat the P-F Hydraulic Rescue Kit as you would any other piece of fine machinery.

...Send unit to nearest P-F Authorized Jack Service Station for service.

DON'T

...Attempt to disassemble the pump and ram units yourself.

...Use a dirty oil can or one that previously contained any other fluid when filling the ram.

...Fill Pump beyond oil level or neglect to do a complete bleeding operation.

...Overload the ram. Never try to lift a load which exceeds the ram capacity as it will cause cracked cylinders, blown cups and bent piston.

...Over-extend ram. There is a tremendous force in hydraulic power and it is possible to push piston out of top of ram.

...Pump rapidly when load is off center such as when you are using pressing, pulling and spreading operations or lifting with Spreading Toes. Excessive off-center loads produce strain on ram piston and tubes.

...Drop heavy objects on hose. It will weaken hose and cause it to leak or burst.

... Carry unit by hose, this puts undue strain on hose.

HYDRAULIC RESCUE KITS

Guarantee

All P-F Body Repair Tools and Equipment except Hose and Chain are guaranteed against defects in materials and workmanship. Hydraulic Jacks have a warranty period of ninety days. (See Warranty Card Enclosed with each Jack). Tools and Equipment that have been used beyond capacity, abused, or used for other than their intended purpose are not covered by this Guarantee.

H. K. PORTER, INC.
SOMERVILLE, MASSACHUSETTS 02143

No. A128 Printed in U.S.A. Revised 6-74

SIERRA COMPANY

Crash Rescue Kit (CRK5 SIERRA) Ansul Part No. S-52537

SIERRA AIRCRAFT RESCUE CRASH TOOL KIT

Sierra Company
Los Angeles, CA 90037

Aircraft Cable Cutters, 14 inch, capacity to 1/4 inch

Lineman's Pliers, heavy duty, 8 inches long

Grappling Hook and Rope Sling, 40 inches long

Hack Saw Frame, adjustable, 8 to 12 inches

6 Fuel Line Plugs, 3 hardwood, 3 neoprene

Heavy Canvas Roll, treated, stencil outlined with tool pockets or straps

Rescue Knife, with "V" blade, will cut 10000 lb. webbing or seat belts

Serrated-Edge Axe, heat-treated blade for metal piercing

Vise Grip Wrench, 10 inches long

3 Hack Saw Blades, 10 inch steel

Metal Cutting Saw, 20 inch blade

2 Slot Screwdrivers, 4 inch and 6 inch

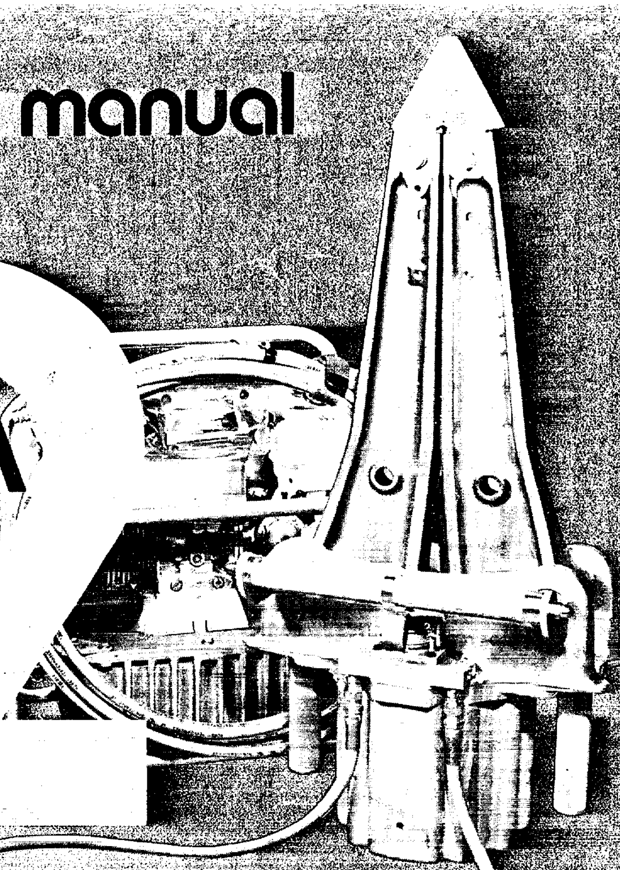
2 Phillips Screwdrivers, 4 inch and 6 inch

HURST PERFORMANCE INC. - SAFETY PRODUCTS DIVISION

Rescue Tool (Model 3620025) Ansul Part No. S-52534

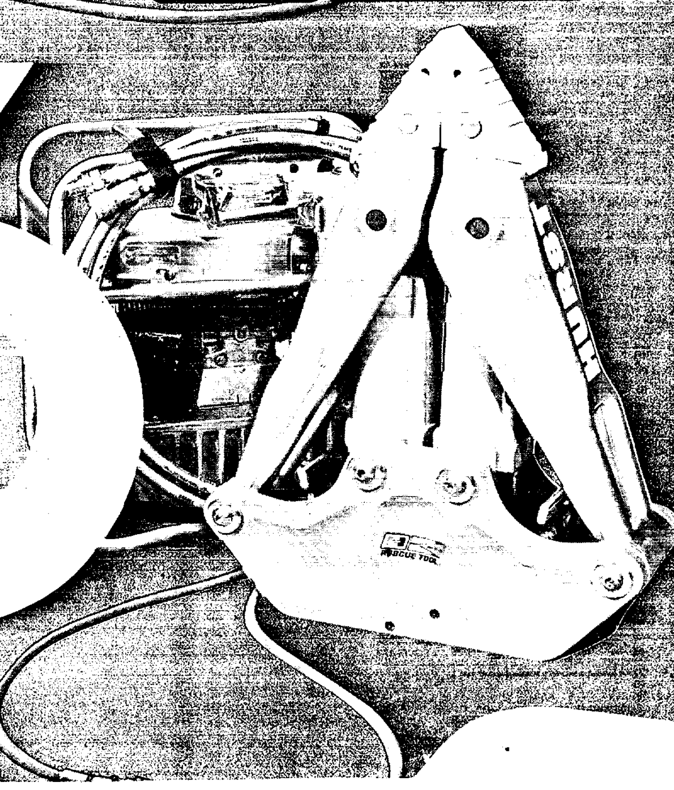
instruction manual

model 32a



JAWS OF LIFE

HURST



26a model

The Hurst Performance Power Rescue Tools are high-powered, self-contained, maintenance-free hydraulic spreading and pulling devices. Model 32A operates with maximum output of 12,000 lb. of force at the tips of jaws. Model 26A operates with maximum of 10,000 lb. of force at the tips of jaws. Other characteristics of both tools include:

Operates without flames, grinding sparks or mechanical cutting.

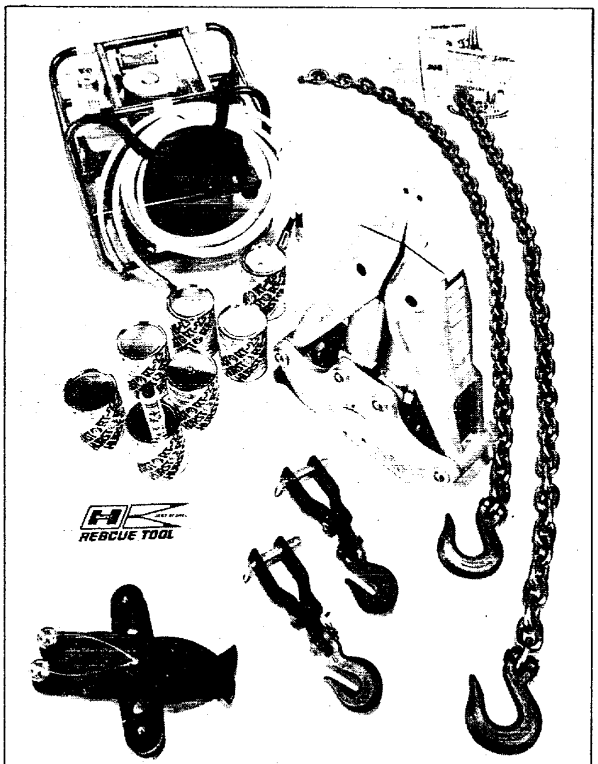
One-man operation, hand held, completely portable; can be operated at any attitude. Controls are operated by thumb pressure from either hand.

Opening time for arms: 11 seconds without load for fast advance, 40 seconds under load.

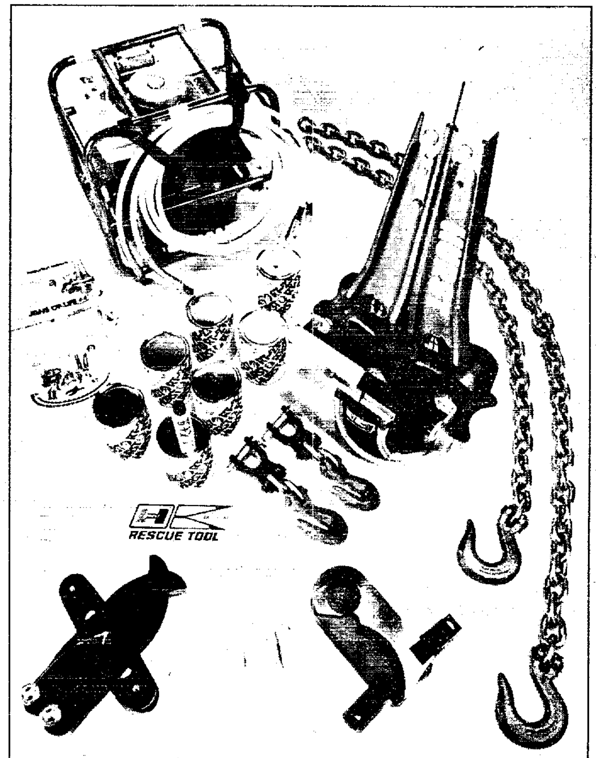
Closing time for arms: 11 seconds without load for fast advance, 40 seconds under load.

The versatile, Hurst Power Rescue Tools have life saving applications in surface transportation systems, automotive, a variety of industrial and commercial rescue areas, and aircraft personnel rescue (model 32A only).

CONTENTS

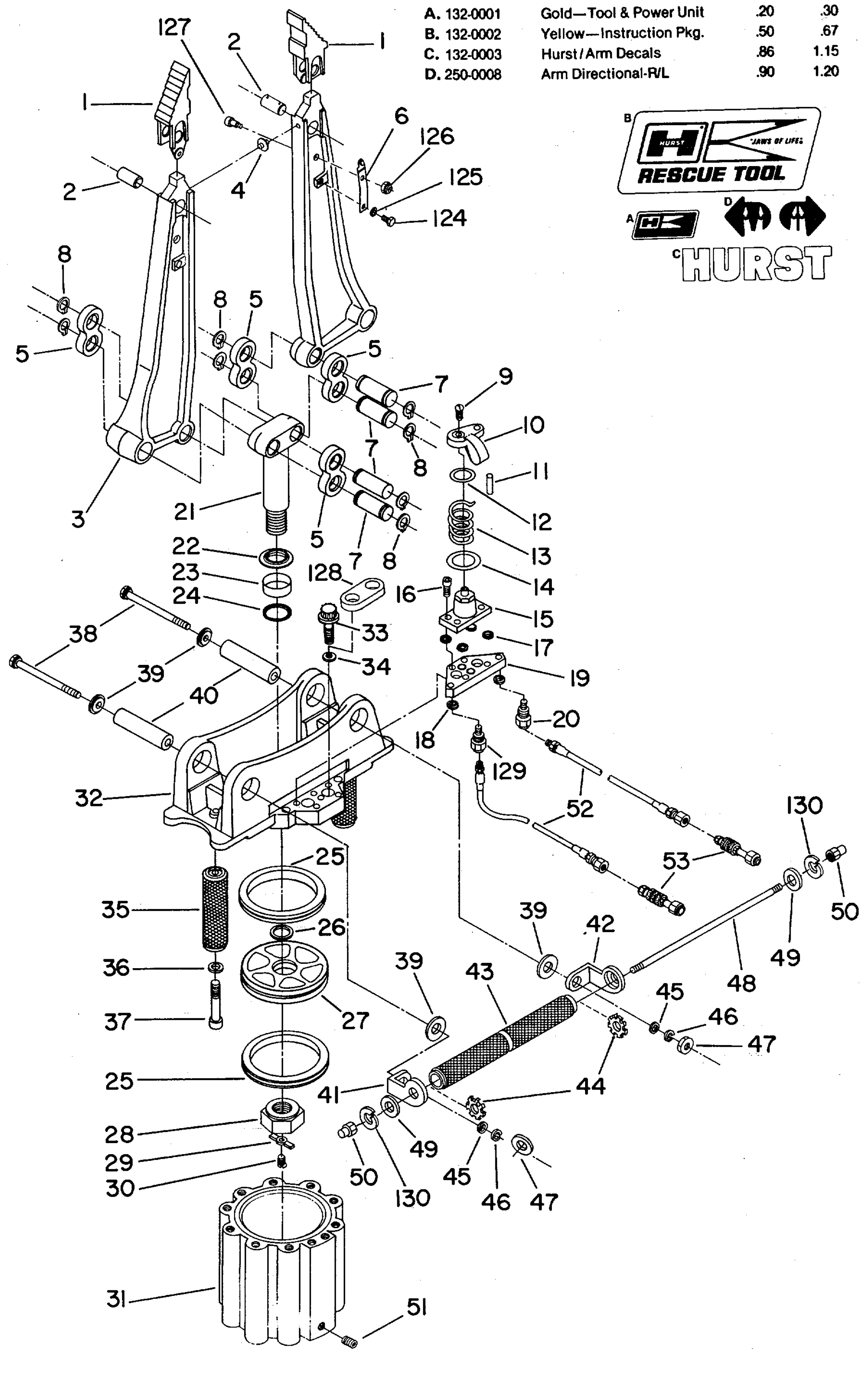


MODEL 26A & ACCESSORIES



MODEL 32A & ACCESSORIES

MODEL 32A DECAL PKG.		Dist.	Sug. List
A. 132-0001	Gold—Tool & Power Unit	.20	.30
B. 132-0002	Yellow—Instruction Pkg.	.50	.67
C. 132-0003	Hurst/Arm Decals	.86	1.15
D. 250-0008	Arm Directional-R/L	.90	1.20



rescue tool

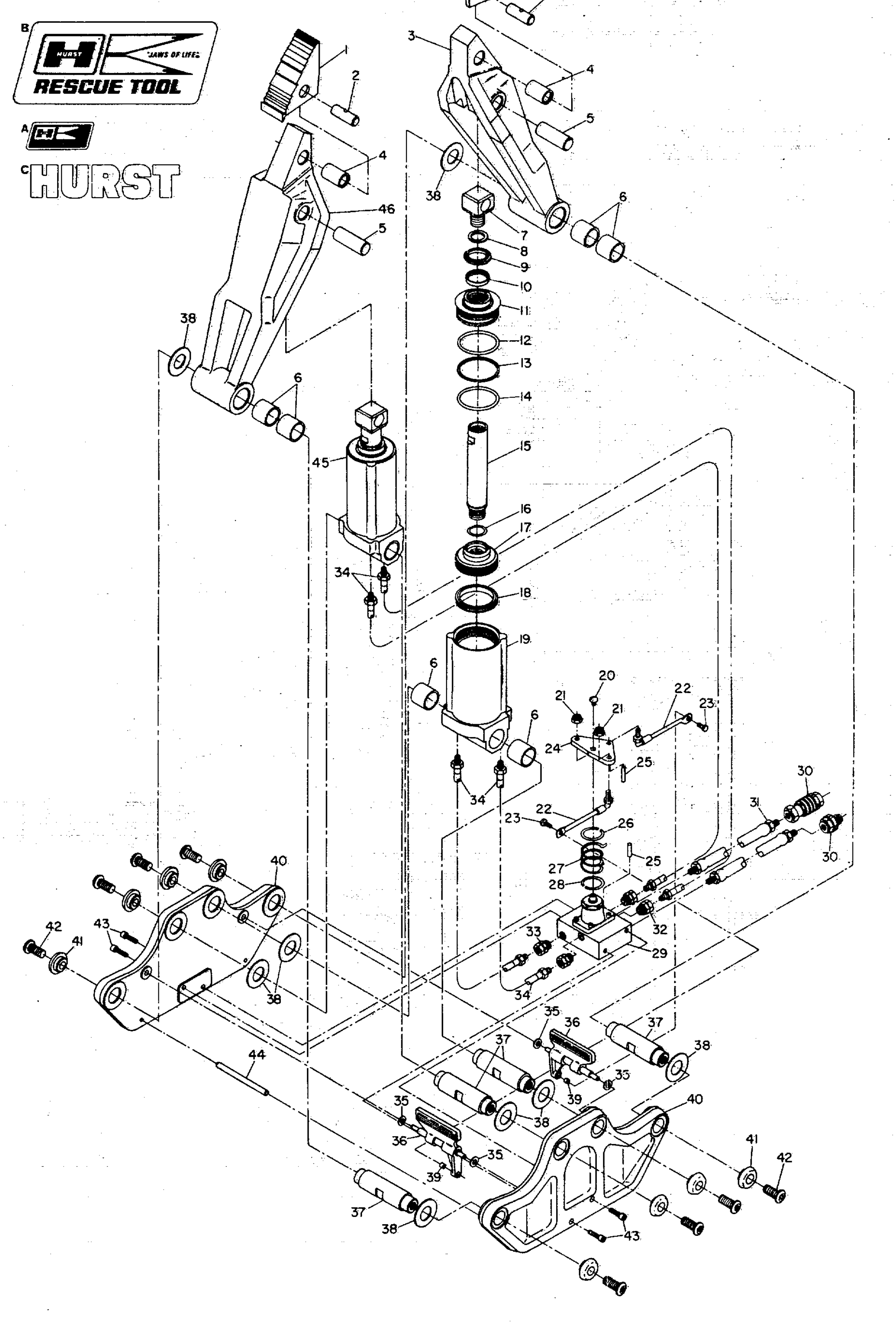
MODEL 32a

rescue tool

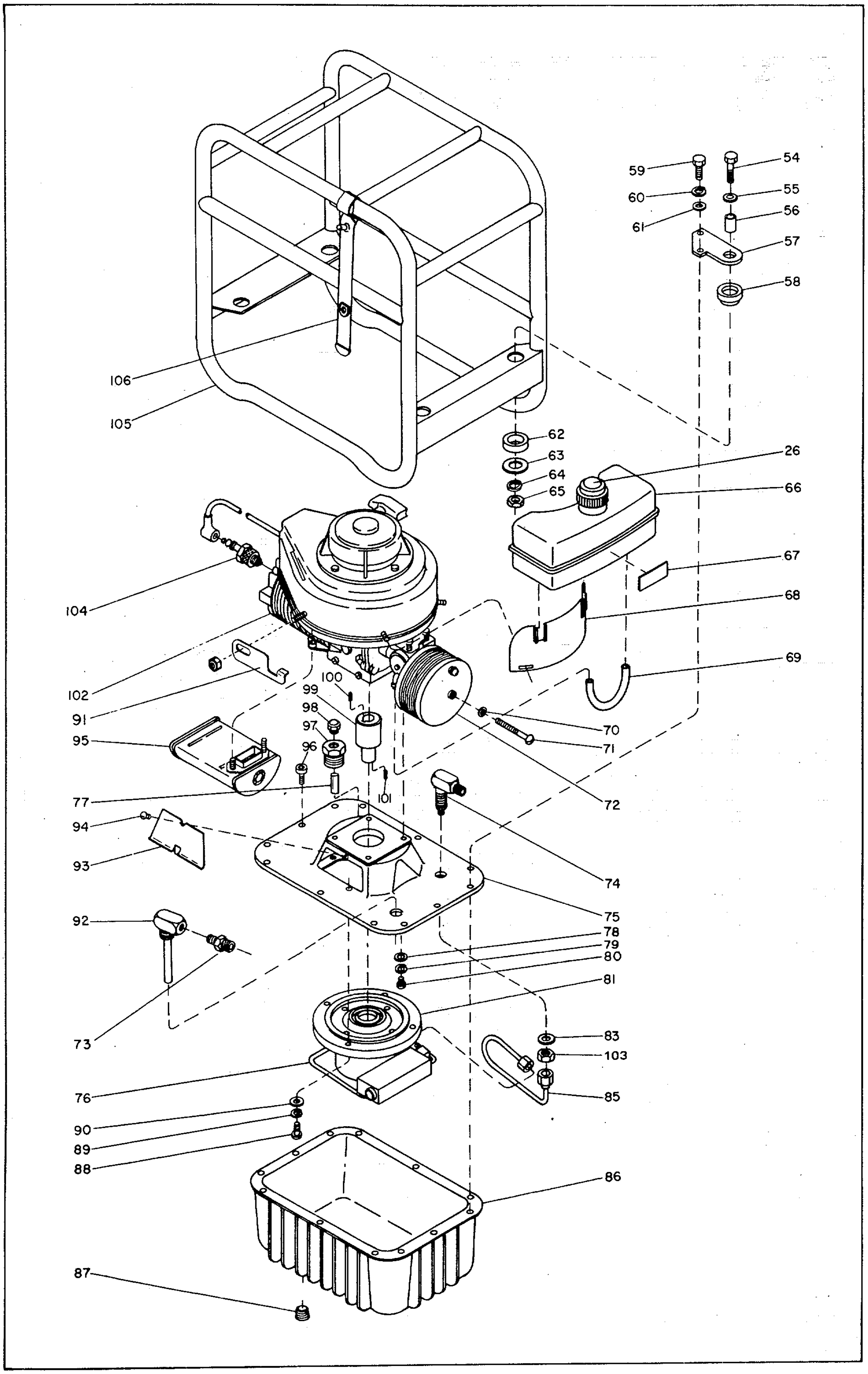
MODEL

26a

MODEL 32A DECAL PKG.		Dist.	Sug. List
A. 132-0001	Gold—Tool & Power Unit	.20	.30
B. 132-0002	Yellow—Instruction Pkg.	.50	.67
C. 132-0003	Hurst/Arm Decals	.86	1.15



power unit


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parts list MODELS 32a|26a

MODEL 32A

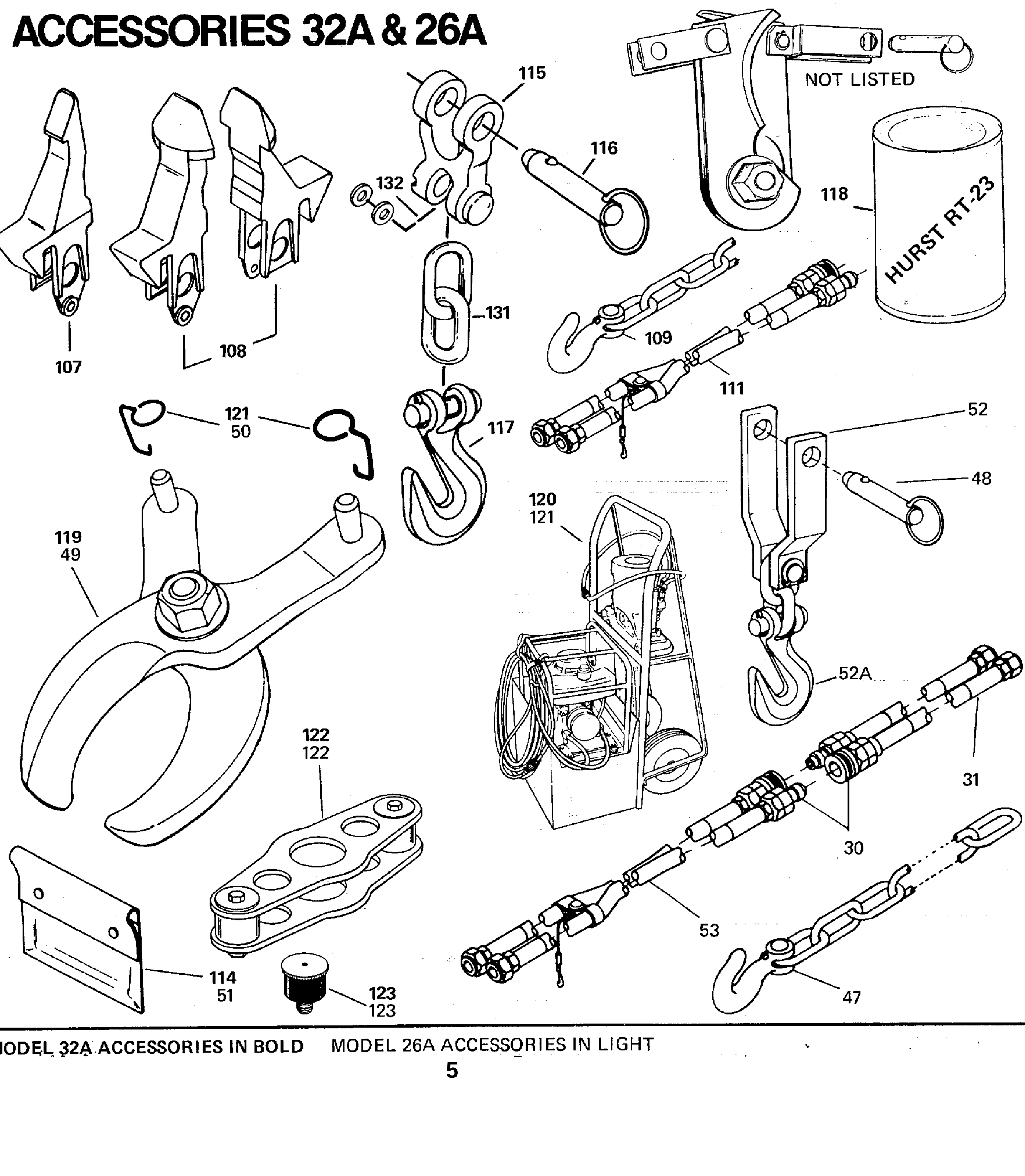
	Part No.	Description
1	D92-347-8614	Automotive Jaw
2	B31-189-0005	Jaw Retainer Pin
3	E61-105-0034	Rescue Tool Arm
4	B61-119-8752	Stop Button
5	B61-171-0010	Link
6	B31-168-8645	Latch Assembly
7	C61-189-0029	Link Pin
8	B90-211-0018	Retainer Ring
9	B90-271-0001	Truss Hd. Screw
10	B31-335-0012	Trigger & Pin Assembly
11	B90-191-8834	Roll Pin
12	B90-208-8840	Upper Retainer
13	C61-230-8839	Torsion Spring
14	B90-208-0004	Lower Retainer
15	D91-266-0019	Valve Assembly
16	B90-215-0044	Socket Hd. Screw
17	B90-337-0018	"O" Ring
18	B90-337-0017	"O" Ring
19	D61-112-0006	Manifold Block
20	B90-142-0049	Fitting Male, 37° x 7/16-20
21	C31-213-0068	Piston Rod
22	B90-216-8732	Piston Rod Wiper
23	C61-118-8663	Piston Rod Bushing
24	B90-216-8712	Piston Rod Seal
25	C90-216-8711	"T" Ring Piston Seal
26	B90-121-0015	Gas Tank Cap
27	C61-350-0004	Hyd. Cylinder Piston
28	B61-179-0027	Piston Rod Nut
29	B61-208-8675	Piston Nut Retainer
30	B90-215-8743	Retainer Screw
31	D51-392-0009	Housing Assembly
32	D31-145-0014	Frame Assembly
33	B90-215-0050	12 Point Cap Screw
34	B61-267-0037	Flat Washer
35	C61-349-8650	Handle
36	B90-267-8745	Flat Washer
37	B90-215-0046	Socket Hd. Cap Screw
38	B90-215-0047	Cap Screw
39	B61-228-0043	Bracket Spacer
40	B61-189-0024	Pivot Pin
41	C61-117-0066	Handle Bracket, L.H.
42	C61-117-0065	Handle Bracket, R.H.
43	C61-404-0011	Handle
44	B90-267-0040	Ext. Tooth Lock Washer
45	B90-267-8742	Lock Washer
46	B90-267-8818	Flat Washer
47	A90-179-3491	Hex Nut
48	B61-213-0060	Handle Rod
49	B90-267-8745	3/8" Flat Washer
50	B90-179-0023	Acorn Hex. Lock Nut
51	B90-357-0013	Pipe Plug
52	C91-353-0011	Hose, Pressure & Return, 30"
53	B31-128-0008	Connector Set, 1M 1F
54	A90-215-4052	Hex. Hd. Bolt
55	A90-267-3478	Flat Washer
56	B61-228-8876	Spacer Washer
57	C61-117-8783	Reservoir Mounting Bracket
58	C90-118-0020	Insulator Bushing
59	B90-215-8802	Hex. Hd. Screw
60	A90-267-3468	Lock Washer
61	A90-267-5712	Flat Washer
62	A90-228-0054	Insulator Ring
63	B61-267-8782	Special Washer
64	A90-267-3478	Split Washer
65	B90-179-8877	Hex Nut
66	B90-354-8727	Fuel Tank
67	B91-327-0004	Choke Nameplate
68	D61-117-8676	Fuel Tank Bracket
69	B61-353-8880	Fuel Line
70	B90-267-3467	Split Washer
71	B90-271-8863	Screw
72	C90-359-8809	Air Filter
73	B90-142-0035	Fitting, 7/16" x 20 w/"O" Ring
74	B90-142-0061	Fitting, Elbow
75	D61-130-8756	Cover
76	B91-259-0059	Pressure Tubing
77	B90-191-0007	Oil Dip Stick Pin
78	A90-267-3481	Plain Washer
79	A90-267-3467	Split Washer
80	A90-215-3429	Hex Hd. Cap Screw
81	B90-355-8731	Hydraulic Pump
	D61-130-0006	A.C. Unit Cover Plate
83	A90-267-3475	Washer
	A90-248-0011	A.C. Unit Power Switch
85	B91-260-0002	Pressure Tubing
86	E61-354-8696	Reservoir Tank
87	B90-357-0007	Hollow Hex. Plug
88	A90-215-3856	Hex Hd. Cap Screw
89	A90-267-3468	Lock Washer
90	A90-267-5712	Flat Washer
91	C91-243-0002	Throttle Stop
92	B31-259-8726	Tube & Elbow Assembly
93	C61-195-8761	Reservoir Cover Plate
94	B90-271-8862	No. 6-32 Machine Screw
95	C31-351-8704	Muffler Assembly
96	B90-271-8860	Flat Hd. Screw
97	B51-142-0059	Hex Bushing
98	B90-359-8835	Breather Filter
99	C61-101-8735	Engine to Pump Adaptor
100	B90-358-8805	Engine Shaft Key
101	B90-358-8806	Adaptor Shaft Key
102	E90-356-8734	2 Cycle Engine
		Chrysler Engine Parts:
	A90-377-0005	No. ID-24x3/8" Screw w/Washer
	A90-377-0006	Cord
	A90-377-0007	T-Handle
	A90-377-0008	Cover
	A90-377-0009	Centering Pin
	A90-377-0010	Rewind Spring
	A90-377-0011	Rotor
	A90-377-0012	Fiber Washer
	A90-377-0013	Friction Shoe Plate
	A90-377-0014	Friction Shoe Spring
	A90-377-0015	Spring Retainer Plate
	A90-377-0016	Brake Lever
	A90-377-0017	Brake Spring
	A90-377-0018	Brake Retainer Washer
	A90-377-0019	Retainer Ring
	A90-377-0020	Breaker Points Set
	A90-377-0021	Coil
	A90-377-0022	Condenser
	A90-377-0023	Gasket & Packing Set
	A90-377-0024	Repair Parts Kit
	A90-377-0025	Reed
	A90-377-0026	Reed Stop
	A90-377-0030	Carburetor
	A90-377-0031	High Tension Lead
	A90-377-0032	Shorting Contact (Kill Switch Assy.)
	A90-377-0033	#8-32 Hex. Nut (Kill Sw. Assy.)
	A90-377-0034	Fiber Washer (Kill Switch Assy.)
	A90-377-0035	Fiber Bushing (Kill Switch Assy.)
	A90-377-0036	#8-32 x .75 Rd. Hd. Screw (Kill Switch Assy.)
	A90-377-0051	Recoil Starter (5000 PSI Power Unit)
	A90-377-0052	Starter Shoe Assy.
	A90-377-0053	Radio Suppressant Kit
	A90-377-0054	Recoil Starter (Low Profile)
103	B90-179-0029	Nut
104	A90-357-0001	Spark Plug
105	E31-145-8763	Eng. Mtg. Frame Assembly
106	C91-244-0006	Strap
107	D92-347-8873	Aircraft Cutting Jaw
108	D92-347-8874	Aircraft Spreading Jaw
109	C91-364-8881	Chain & Hook Assembly
	D31-353-0013	Hose w/Strain Relief Cable, 16'
111	D31-353-0014	Hose w/Strain Relief Cable & Connector, 16'
	D31-353-0012	Hose, 16' Twinned
	D31-353-0016	Hose w/2 Connectors, 16'
114	B31-257-0003	Tool Kit
115	C91-171-8866	Clevis Link
116	B90-189-8682	Pin
117	B90-305-0003	Grab Hook
118	B91-180-8751	Hydraulic Fluid/Qts.
119	A00-257-0032	Power Shears
	A00-362-0023	Ship. Assy., Model 32A w/Gas Power Unit
	A00-362-0025	Ship. Assy., Model 32A w/Gas Power Unit & Aircraft Jaws
	A00-362-0026	Ship. Assy., Model 32A w/110V A.C. Power Unit
	A00-362-0027	Ship. Assy., Model 32A w/110V A.C. Power Unit & Aircraft Jaws
	A00-362-0028	Ship. Assy., Model 32A w/220V A.C. Power Unit
	A00-362-0029	Ship. Assy., Model 32A w/220V A.C. Power Unit & Aircraft Jaws
	A00-362-0030	Ship. Assy., Model 32A w/12V D.C. Power Unit
	A00-362-0031	Ship. Assy., Model 32A w/12V D.C. Power Unit & Aircraft Jaws
	A00-362-0044	Ship. Assy., Model 32A
	A31-362-0019	Rescue Tool Assembly, Model 32A
	A31-363-0027	Hydraulic Power Unit
	A31-363-0016	Gas Power Unit w/Hyd. Fluid
	A31-363-0017	110V A.C. Power Unit w/Hyd. Fluid
	A31-363-0018	220V A.C. Power Unit w/Hyd. Fluid
	A31-363-0019	12V D.C. Power Unit w/Hyd. Fluid
	A31-364-8891	Chain & Shackle Package
	C91-389-0001	110V or 220V A.C. Electric Motor
	C91-389-0002	12V D.C. Electric Motor
	C91-364-0008	12 ft. Chain w/Hooks
	C91-353-0022	30 ft. Hose w/2 Connectors
	A00-362-0040	Handle Conversion Kit
	B90-142-0056	32A Connector Adaptor
	A61-120-0004	6 ft. Cord 110/220V A.C. Power Units
	A61-357-0004	110V A.C. Plug
	A61-357-0005	220V A.C. Plug
	A91-159-0082	Instruction Manual
	B61-200-0001	Plastic Pouch (tool kit)
	A00-180-0006	Pist-N-Lube, CASE
	C61-361 8817	Flame Arrestor Screen (muffler)
	B91-120-8870	Cable, Strain Relief
	B90-126-0012	Hose Clamp (strain relief cable)
	B90-360-8814	Snap Hook (strain relief cable)
	B90-212-0006	Rivet (strain relief cable)
	B90-649-0005	Washer (strain relief cable)
		Connector "O" Rings (32A)
		Fan, A.C. Electric Motors
	A90-252-0002	12V D.C. Alligator Clamps (2)
	A00-347-0001	Set, Aircraft Jaws (3)
120	A91-122-0013	Transporter
121	B61-127-0005	Shear Safety Clip, 32A
122	B31-243-0009	Shear Stops
123	B31-163-0007	Shear Locking Caps
124	B90-215-8741	Hex Hd. Screw
125	B90-267-8742	Spring Lock Washer
126	B90-179-8750	Self Locking Nut
127	B90-215-8749	Shoulder Screw
128	B-61-244-0004	Strap
129	B-90-266-0017	Check Valve
130	B-90-267-3464	Lock Washer
131	B90-364-0004	Two Link Chain
132	A90-267-0032	Washer

MODEL 26A

	Part No.	Description
1	D61-393-0002	Automotive Jaws,
2	B31-189-0015	Jaw Retainer Pin,
3	D31-105-0024	Rescue Tool Arm,
4	B61-118-0009	Bushing
5	B51-189-0013	Pin, Rod End
6	B61-118-0011	Bushing Arm/Cyl.
7	C61-171-0003	Rod End Link
8	B61-220-0001	Insert, Spacer
8a.	B61-220-0002	Insert, Spacer
9	B90-211-0011	Ring, Wiper
10	B90-216-0012	"T" Ring Rod End Seal w/Rings
11	C61-121-0011	Cap, Cylinder
12	B90-337-0001	Seal, Split
13	B90-211-0012	Ring, Back up
14	B90-337-0003	"O" Ring, Cylinder Cap
15	C61-213-0032	Rod Piston
16	B90-337-0004	"O" Ring Piston Rod
17	C61-350-0002	Piston
18	B90-216-0009	"T" Ring Seal w/Rings
19	D61-392-0010	Cylinder
20	B90-271-0001	Screw, Truss Head
21	A90-179-5697	Lock Nut 1/4"
22	B31-213-0044	Control Arm Assembly
23	B90-215-0035	Screw, Cap Locking
24	C61-195-0070	Plate Valve Control
25	B90-191-8834	Roll Pin
26	B90-208-8840	Retainer Ring, Upper
27	C61-230-8839	Torsion Spring
28	B90-208-0004	Retainer Ring, Lower
29	C31-266-0003	Valve & Sub-Plate Assembly
29a.	B91-266-0019	Valve Assembly
29b.	D61-195-0064	Valve Sub-Plate
30	B31-128-0008	Connector Set, 1M 1F
31	C91-353-0011	Hose, Pressure & Return, 30"
32	B90-142-0049	Fitting
33	B90-142-0016	Swivel 1/8" x 1/8"
34	B91-353-0007	Hose, Cylinder
35	B90-267-8755	Washer
36	B61-170-0024	Lever
37	C61-228-0029	Spacer Arm/Cylinder
38	C61-267-0020	Wear Washer
39	B61-118-0013	Spacer, Control
40	B61-145-0001	Frame
41	B61-267-0021	Washer, Special
42	B90-215-0026	Cap Screw, Button Hd.
43	B90-215-0028	Cap Screw, 1/4"
44	B61-213-0035	Rod, Hose Retainer
45	D31-392-0005	Cylinder Assembly
46	D31-105-0027	Arm & Bushing Assembly
47	C91-364-8881	Chain & Hook Assembly
48	B90-189-0018	Pin
49	A00-257-0032	Power Shears
50	B61-127-0006	Shear Safety Clip, 26A
51	B31-257-0003	Tool Kit
52	C31-305-0002	Clevis Link & Grab Hook Assy.
52a	B90-305-0003	Grab Hook
53	D31-353-0013	Hose w/Strain Relief Cable, 16'
	D31-353-0012	Hose, 16' Twinned
	D31-353-0016	Hose w/2 Connectors, 16'
	D31-353-0014	Hose w/Strain Relief Cable & Connector
54	A90-215-4052	Hex Hd. Bolt
55	A90-267-3478	Flat Washer
56	B61-228-8876	Spacer Washer
57	C61-117-8783	Reservoir Mtg. Bracket
58	C90-118-0020	Insulator Bushing
59	B90-215-8802	Hex Hd. Screw
60	A90-267-3468	Lock Washer
61	A90-267-5712	Flat Washer
62	A90-228-0054	Insulator Ring
63	B61-267-8782	Special Washer
64	A90-267-3478	Split Washer
65	B90-179-8877	Hex Nut
66	B90-354-8727	Fuel Tank
67	B91-327-0004	Choke Nameplate
68	D61-117-8676	Fuel Tank Bracket
69	B61-353-8880	Fuel Line
70	B90-267-3467	Split Washer
71	B90-271-8863	Screw
72	C90-359-8809	Air Filter
73	B90-142-0035	Fitting, 7/16x20 w/"O" Ring
74	B90-142-0061	Fitting, Elbow w/nut
75	D61-130-8756	Cover
76	B91-259-0059	Tubing
77	B90-191-0007	Pin
78	A90-267-3481	Plain Washer
79	A90-267-3467	Split Washer
80	A90-215-3429	Hex Hd. Cap Screw
81	A90-215-3429	Hex Hd. Cap Screw
81	B90-355-8731	Hydraulic Pump
83	A90-267-3475	Washer
	A90-248-0011	A.C. Power Switch
85	B91-260-0002	Pressure Tubing
86	E61-354-8696	Reservoir Tank
87	B90-357-0007	Hollow Hex. Plug
88	A90-215-3856	Hex Hd. Cap Screw
89	A90-267-3468	Lock Washer
90	A90-267-5712	Flat Washer
91	C91-243-0002	Throttle Stop
92	B31-259-8726	Tube & Elbow Assembly

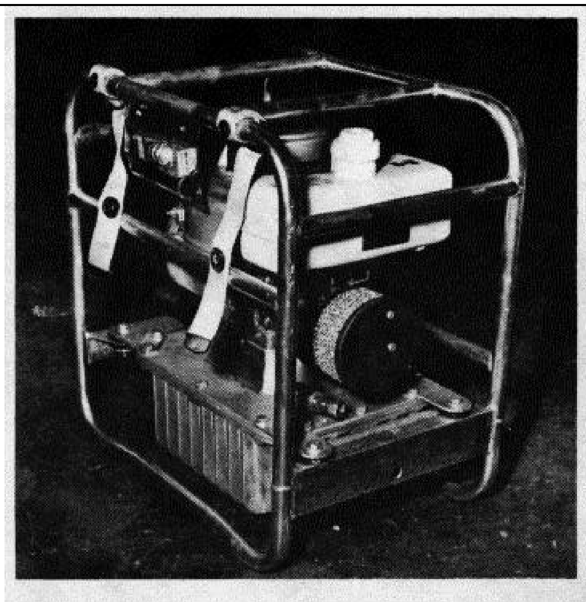
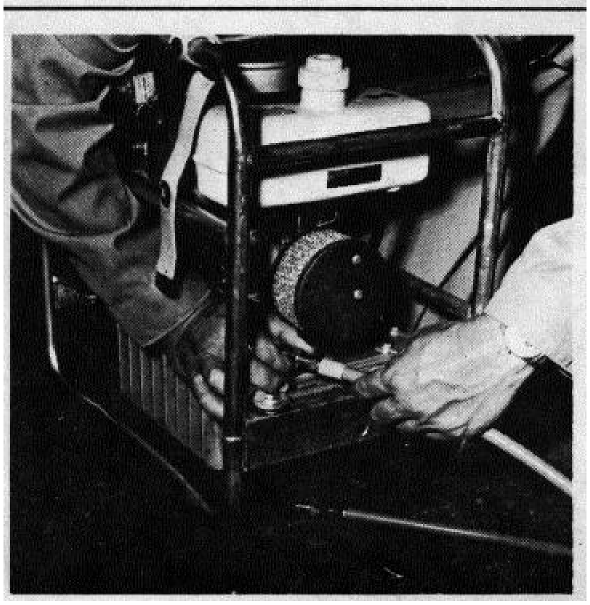
No.	Part No.	Description
93	C61-195-8761	Reservoir Cover Plate
94	B90-271-8862	No. 6-32 Machine Screw
95	C31-351-8704	Muffler Assembly
96	B90-271-8860	Flat Hd. Washer
97	B90-142-0059	Hex Bushing
98	B90-359-8835	Breather Filter
99	C61-101-8735	Engine to Pump Adaptor
100	B90-358-8805	Engine Shaft Key
101	B90-358-8806	Adaptor Shaft Key
102	E90-356-8734	2 Cycle Engine
		CHRYSLER ENGINE PARTS:
	A90-377-0005	No. ID-24 x 3/8" Screw w/Washer
	A90-377-0006	Cord
	A90-377-0007	T-Handle
	A90-377-0008	Cover
	A90-377-0009	Centering Pin
	A90-377-0010	Rewind Spring
	A90-377-0011	Rotor
	A90-377-0012	Fiber Washer
	A90-377-0013	Friction Shoe Plate
	A90-377-0014	Friction Shoe Spring
	A90-377-0015	Spring Retainer Plate
	A90-377-0016	Brake Lever
	A90-377-0017	Brake Spring
	A90-377-0018	Brake Retainer Washer
	A90-377-0019	Retainer Ring
	A90-377-0020	Breaker Point Set
	A90-377-0021	Coil
	A90-377-0022	Condenser
	A90-377-0023	Gasket & Packing Set
	A90-377-0024	Repair Parts Kit
	A90-377-0025	Reed
	A90-377-0026	Reed Stop
	A90-377-0030	Carburetor (complete)
	A90-377-0031	High Tension Lead
	A90-377-0032	Shorting Contact (Kill Switch Assembly)
	A90-377-0033	#8-32 Hex Nut (Kill Switch Assembly)
	A90-377-0034	Fiber Washer (Kill Switch Assembly)
	A90-377-0035	Fiber Bushing (Kill Switch Assembly)
	A90-377-0036	#8-32 x .75 Rd. Hd. Screw (Kill Switch Assembly)
	A90-377-0051	Recoil Starter (5000 PSI Units)
	A90-377-0052	Starter Shoe Assy.
	A90-377-0053	Radio Suppressant Kit
	A90-377-0054	Recoil Starter (Low Profile)
103	B90-179-0029	Nut
104	A90-357-0001	Spark Plug
105	E31-145-8763	Eng. Mtg. Frame Assembly
106	C91-244-0006	Strap
	E31-362-0024	Rescue Tool Assy., Model 26A
	A31-362-0022	Rescue Tool Model 26A w/Gas Power Unit
	A00-362-0032	Rescue Tool Model 26A w/110V A.C. Power Unit
	A00-362-0033	Rescue Tool Model 26A w/220V A.C. Power Unit
	A00-362-0034	Rescue Tool Model 26A w/12V D.C. Power Unit
	A31-363-0016	Gas Power Unit w/Hyd. Fluid
	A31-363-0017	110V A.C. Power Unit w/Hyd. Fluid
	A31-363-0018	220V A.C. Power Unit w/Hyd. Fluid
	A31-363-0019	12V D.C. Power Unit w/Hyd. Fluid
	A31-363-0027	Hyd. Power Unit
	A00-363-0043	Model 26A w/Hyd. Power Unit
	A31-364-0003	Chain & Shackle Package
	C91-389-0001	110V or 220V A.C. Motor
	C91-389-0002	12V D.C. Motor
	C91-364-0008	12 Foot Chain w/Hooks
	C91-353-0022	30 Foot Hose w/2 Connectors
121	A91-122-0013	Transporter
122	B31-243-0009	Shear Stops
123	B31-163-0007	Shear Safety Caps
	B91-259-0059	Tubing
	B90-142-0056	Connector Adaptor
	A61-120-0004	6 ft. Cord (110/220V A.C. Power Units)
	A61-357-0004	110V A.C. Plug
	A61-357-0005	220V A.C. Plug
	A91-159-0082	Instruction Manual
	B61-200-0001	Plastic Pouch (Tool Kit)
	A00-180-0006	Pist-N-Lube (CASE)
	C61-361-8817	Flame Arrestor Screen (Muffler)
	B91-180-8751	Hydraulic Fluid/qts.
	B91-120-8870	Cable, Strain Relief
	B90-126-0012	Hose Clamp (strain relief cable)
	B90-360-8814	Snap Hook (strain relief cable)
	B90-212-0006	Rivet (strain relief cable)
	B90-649-0005	Washer (strain relief cable)
		Connector "O" Rings (26A)
		Fan, A.C. Electric Motors
	A90-252-0002	12V D.C. Alligator Clamps (2)

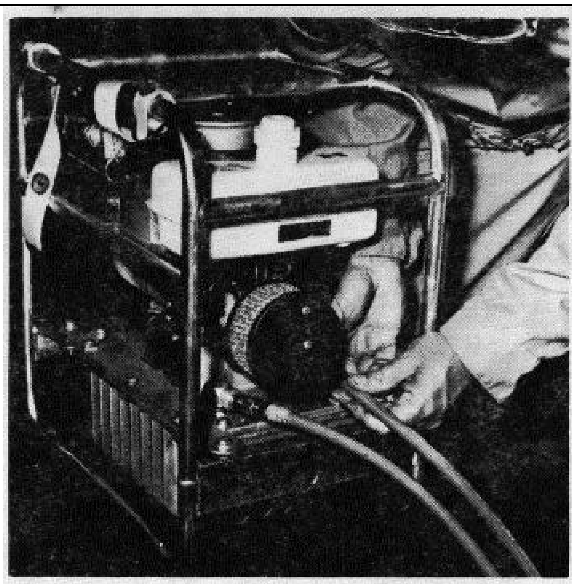
ACCESSORIES 32A & 26A



MODEL 32A ACCESSORIES IN BOLD MODEL 26A ACCESSORIES IN LIGHT

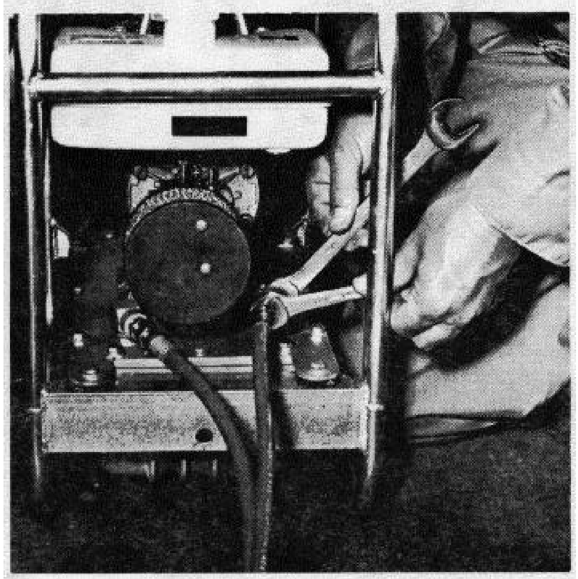
assemble

	1 POWER UNIT ASSEMBLY Remove power unit from carton. Visually inspect power unit and confirm: all bolts and screws are securely fastened, and the unit has not been damaged in shipment.
	2 Remove nylon caps from 16' length of twin hose and attach to power unit. Match color code on hose and swivel connections.



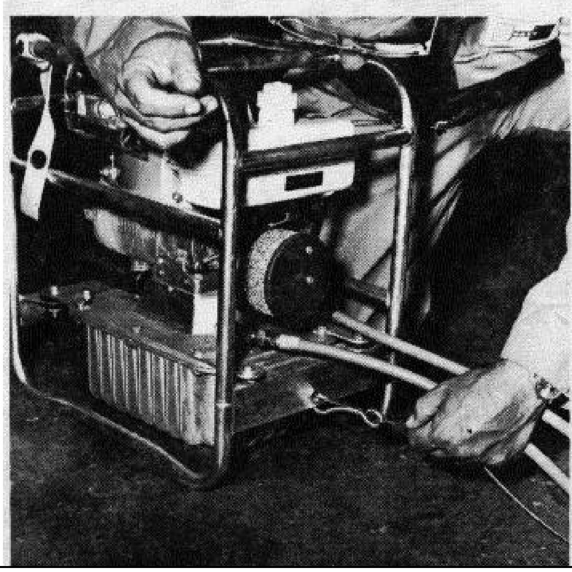
3

Hand tighten both swivel connections on the hose.



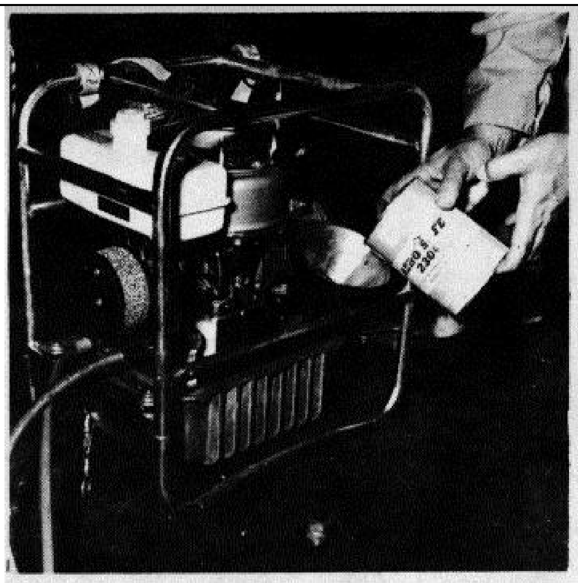
4

Tighten connectors using two 5/8" open end wrenches.



5

Attach strain relief cable with clip through hole at base of power unit.



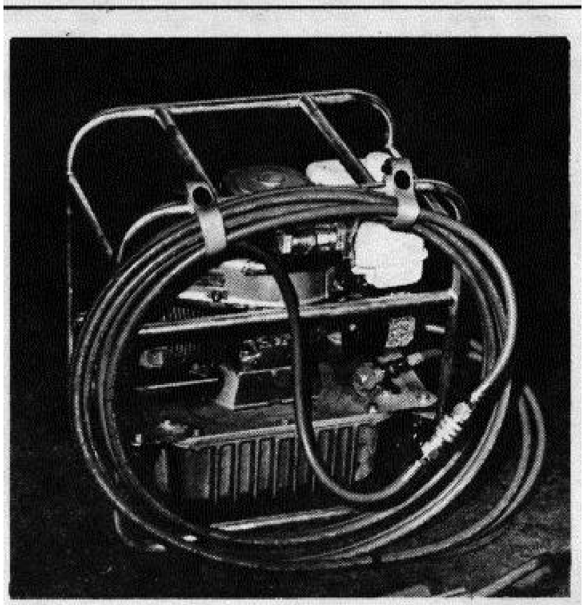
6

Remove hex bushing (fill cap) and fill hydraulic reservoir with three (3) quarts of Phosphate Ester based hydraulic fluid (Hurst RT-23/Aerosafe 2300). Check with dip stick provided. Replace fill cap and "hand tighten."



7

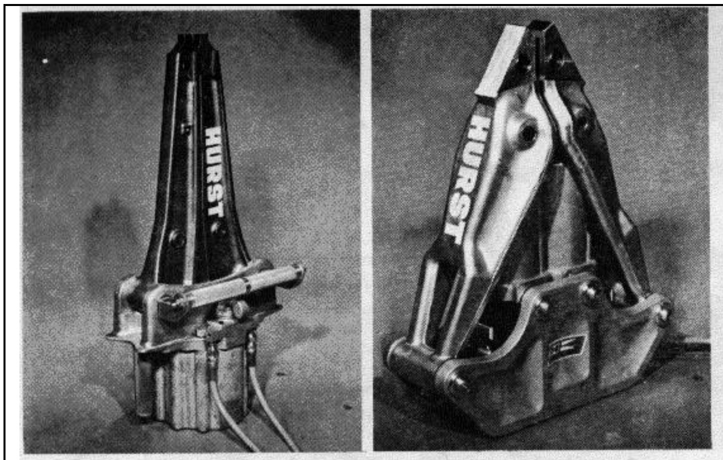
Fill fuel tank atop power unit with gasoline and oil mixture. Mix the portions of 16 gasoline to one oil (1/2 pt. of SAE 30 non-detergent oil to one gallon of regular grade gasoline.) Strain fuel mixture through fine mesh screen or latern fuel filter funnel when filling fuel tank to remove any dirt or water that may be present.



8

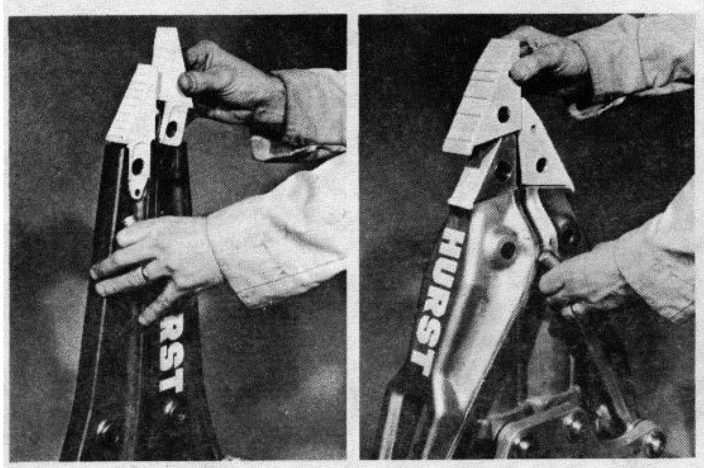
Coil hose and attach to side of power pack roll cage with the two straps provided for this use.

9 POWER TOOL ASSEMBLY



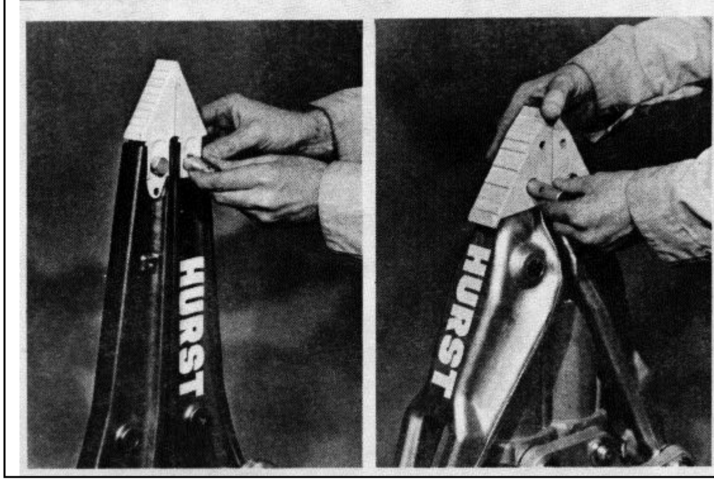
Remove Rescue Tool from carton; inspect unit and confirm that all bolts and screws are securely fastened, and the unit has not been damaged in shipment.

10

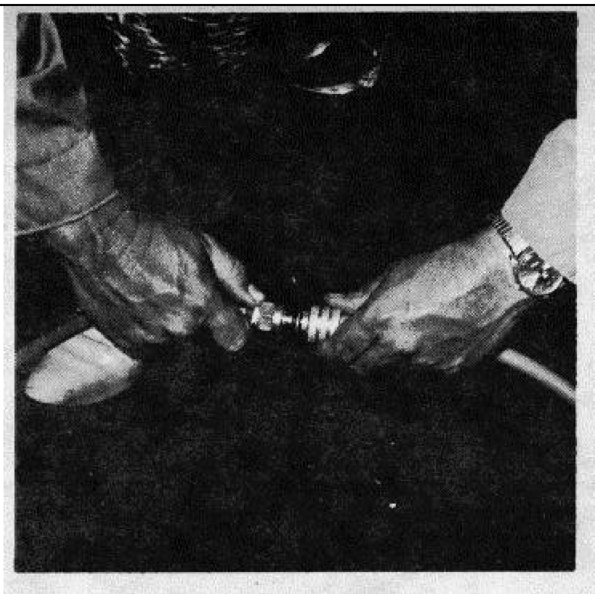


Attach all sets of jaws enclosed to both arms to insure both interchangeability and fit of jaws to the arms of the tools.

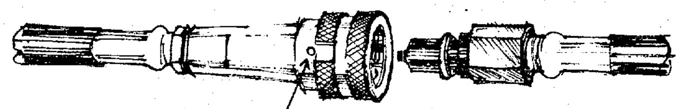
11



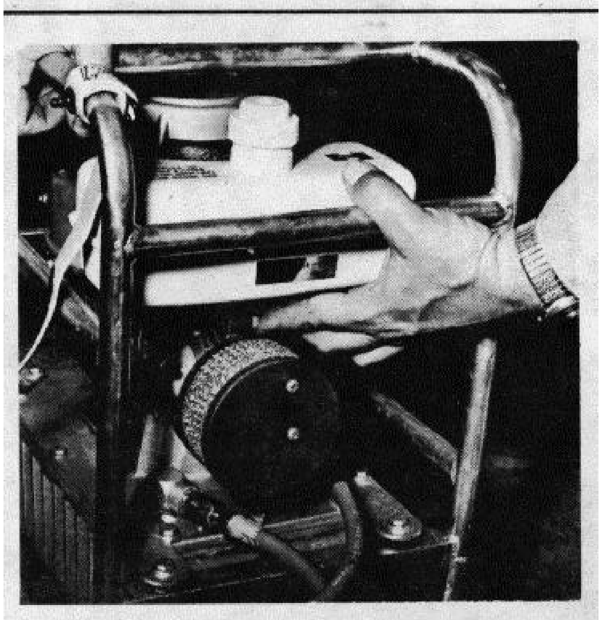
Attach automotive jaws to the tool and insert jaw retainer pins.



12

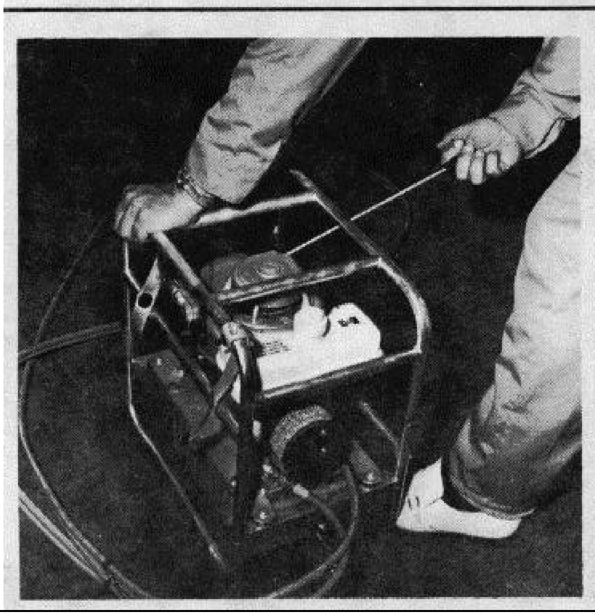


Connect couplings on the short hoses from the tool to the Bruning couplings on the long hoses from the power unit.



13 START UP

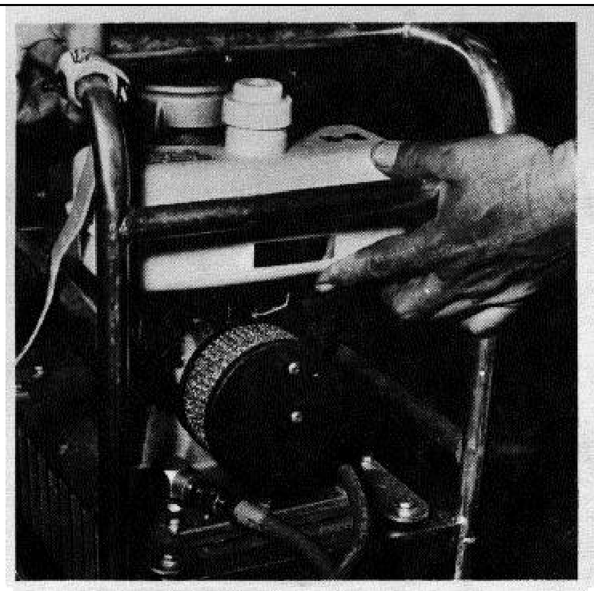
Begin "start up" sequence. Move the choke lever on the power unit engine control to the closed position. CAUTION: DO NOT-START ENGINE UNLESS ALL HOSES ARE CONNECTED. DO NOT BREAK HOSE CONNECTION WHILE POWER UNIT IS OPERATING.



14

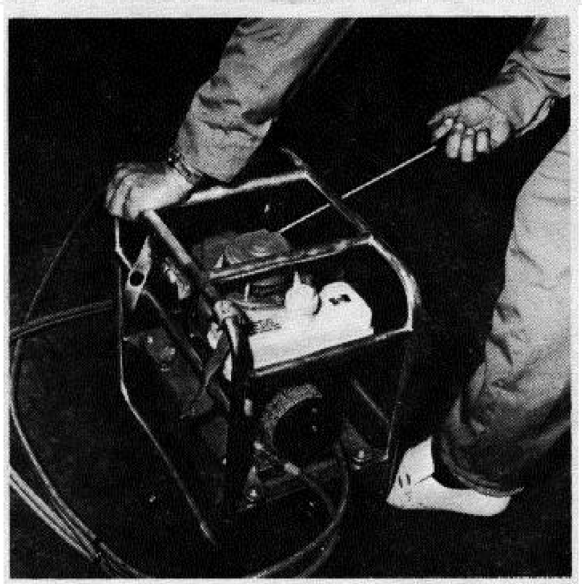
Check operating lever for the governor control. Secure in the "run" position. Pull starter cord several times to prime carburetor, until engine pops.

15



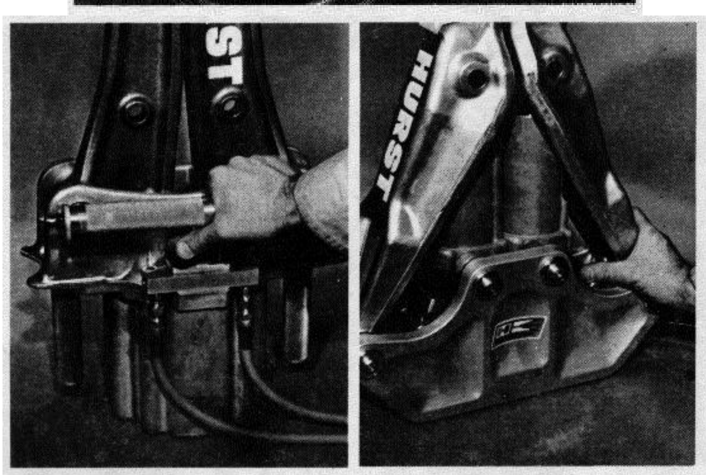
Return choke to the "open" position.

16

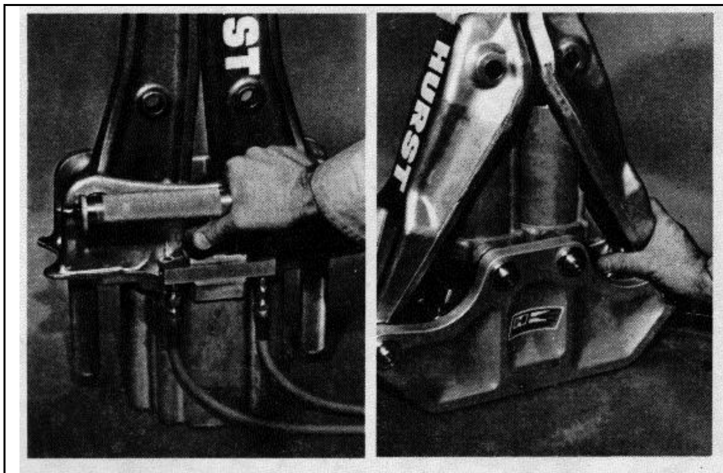


Hold roll cage with one hand and pull cord with other. Pull cord sharply and the engine should start. If the new engine does not run after several pulls, repeat the starting procedure.

17

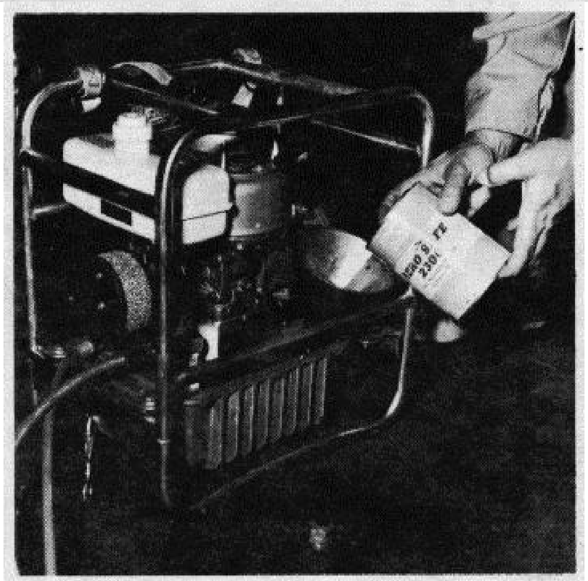


Operate thumb controls several cycles until the arms operate smoothly through full range of movement - from open-to-close. The hydraulic system is self purging and the cycling eliminates air from the system.



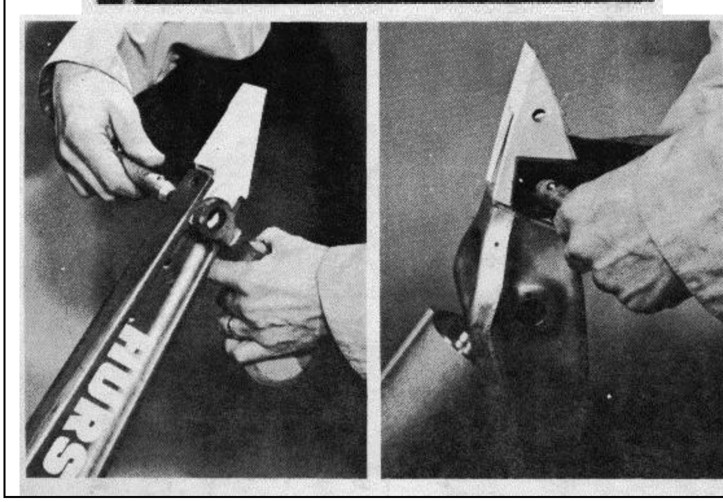
18

Move the thumb controls in a direction away or out from the cylinder body to open or spread the arms of the tool. Move the thumb controls in or toward the cylinder body to close the arms of the tool. If the controls do not operate the arms in this manner, the hoses have been connected incorrectly on either the tool or the power unit. Check the color coding on both and correct. (Turn power unit "OFF" before breaking hose connections.)



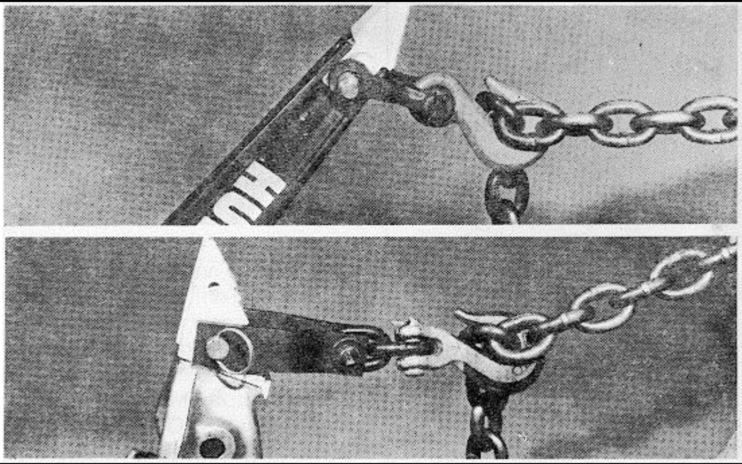
19

Remove hex bushing (fill cap) on power unit and check liquid level in the reservoir. If the liquid level is down, fill to within 1" of top of reservoir. It is not necessary to turn off the power unit to check the fluid level in the reservoir. Replace fill cap and tighten by hand only.



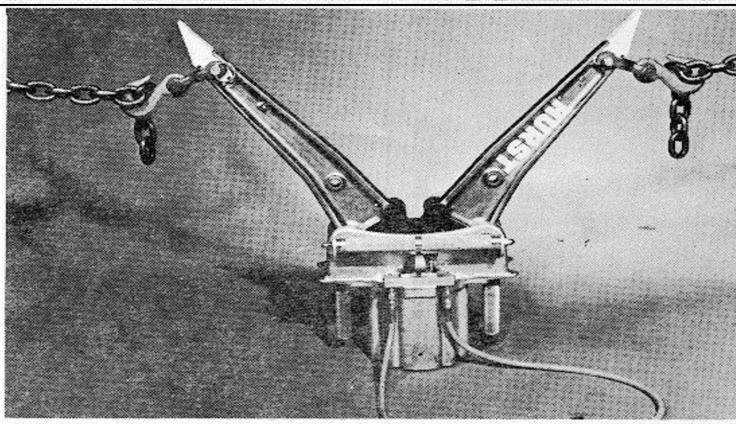
20

To attach chain shackles to the tool, force short jaw retainer pins out of the arm.



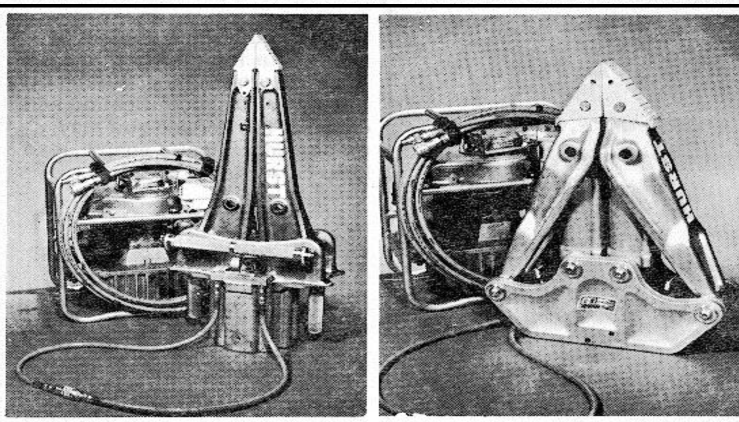
21

Slip chain shackle over the jaw and arm and insert long faspin, locking shackle to arm.



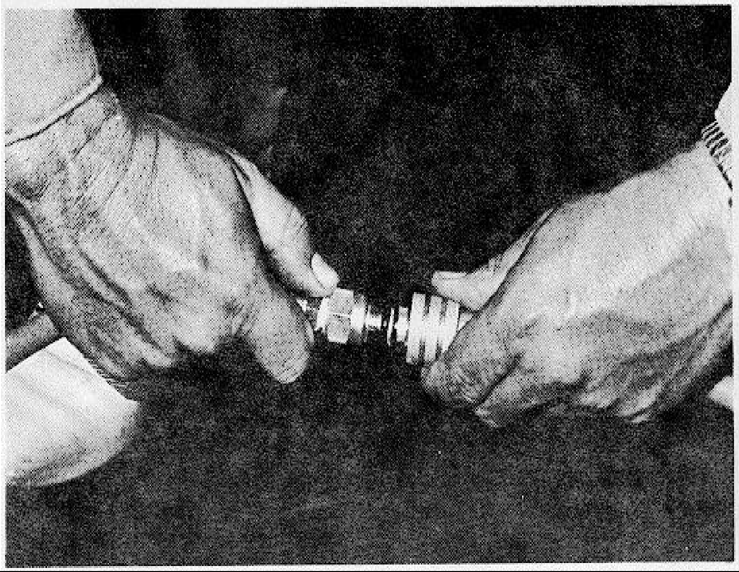
22

Make sure hooks are both facing the same direction, up or down. Attach the chains from same direction (side) to prevent the arms from twisting.



23

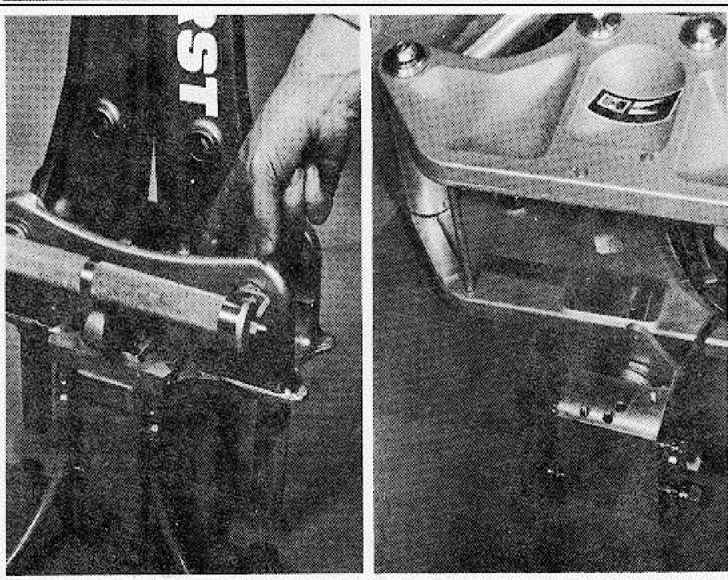
When storing the Rescue Tool, disconnect the short hoses from the long hoses using the couplings. Connect each end together (male to female) to insure that dirt cannot enter and mix with the hydraulic fluid. Tool and power unit may be stored with hoses connected when practical.



24

See alignment illustration on page 10 step 12.

After storage and before re-using the Rescue Tool, disconnect the male and female couplings on the long and short hoses and attach together to connect the power unit to the tool. Make connections BEFORE STARTING THE POWER UNIT.



25

Important: Your Rescue Tool must be registered with HURST to remain in warranty. PLEASE RETURN THE ENCLOSED WARRANTY SLIP TO US IN THE ENCLOSED SELFADDRESSED ENVELOPE.



Should you have to contact us about your Rescue Tool, refer to the tool serial number (found on the tool). This identification will expedite any service you may require and will also enable us to keep current your records.

1 *CONTROLS: The thumb controls should operate freely, requiring only 10 inches/pounds for full travel of thumb controls. They should return freely to the center position when released. If they do not return freely, the possible malfunction could be:

MODEL 26A

a. bent control rod (part no. 22)
Remedial Action: restore control rod to original shape to insure clearance of the casting.

b. return spring (part no. 27) slipped from-alignment pins. Remedial Action: slip ends of spring over both alignment pins (part no. 25) and. resecure top retaining ring (part no. 26) on top of valve body (part no. 29).

c. controls fail to operate valve.
Remedial Action: replace locks (part no. 21), or tighten/replace screw on top of valve cam (part no. 20).

MODEL 32A

a. return spring (part no. 13) slipped from alignment pins. Remedial Action: slip ends of spring over both alignment pins (part no. 11) and resecure top retaining ring (part no. 12) on top of valve body (part no. 15).

b. control fails to operate valve.
Remedial Action: tighten/replace screw on top of valve cam (part no. 9).

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2 DIRECTION CONTROL VALVE: The direction control valve should respond to the operation of the thumb controls (open or close). If the valve responds to the thumb control operation, but there is an apparent loss of power or speed, it could be the result of a leak in the valve seals. Remedial Action: remove valve body and replace O-rings and reset valve body. Note: All O-rings and seals must be ethylene/propylene rubber.

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3 HYDRAULIC LEAKS: The tool is designed to be a closed hydraulic system and should not leak hydraulic fluid.

a. The most common occurrence of hydraulic fluid leak (waste) has been over-fill of the reservoir. Remedial Action: Make sure reservoir is filled only to within 1" of the top.

b. Valve assembly base plate (32A part no. 19 - 26A part no. 29) Remedial Action: Remove valve assembly base plate and replace entire valve assembly.

c. Coupling leaks
Remedial Action: Tighten couplings.

d. Snap connector leaks
Remedial Action: Tighten connectors-on hose.

e. High pressure outlet leak
Remedial Action: Remove reservoir cover and tighten lock nut on outlet elbow.

g. Return line leak.
Remedial Action: Remove hose and swivel from elbow (part no. 92) and remove elbow from reservoir cover, tape with teflon tape or silicone rubber seal and replace.

---

4 SNAP CONNECTORS: Snap connectors should fit together firmly without difficulty. If they are not connected when the engine is started, the high pressure line builds up pressure and will not engage.

Remedial Action: use 11/16" and 13/16" open end wrenches at the coupling to release pressure. BE SURE COUPLING IS COVERED WITH CLOTH TO PREVENT HYDRAULIC FLUID SPRAY when pressure is released. If emergency exists when this happens, cover male coupling with cloth and strike sharply on a clean hard surface (body of tool,. fender or bumper of car) at a slight angle from the vertical to release pressure. CAUTION: Hydraulic fluid will spray from coupling as pressure is released - PROTECT YOUR EYES. When pressure is relieved, couplings will connect. If emergency procedure is used to relieve pressure, couplings should be replaced at the earliest opportunity.

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5 *PUMP: The hydraulic pump is connected directly to the shaft of the prime mover in the power package (gas engine or electric motor). The pump operates at 5000 psi maximum pressure and less than 800 psi no load pressure. A sequencing valve operated by back pressure changes the pump automatically, when required, from one pressure range to another.

a. Loss of power from pump.
Remedial Action: Open reservoir and check all stainless steel tubing connections and fittings on the pump. If cracked or broken, replace. If all stainless tubing is intact, pour hydraulic fluid in the reservoir through a screen filter to see if any parts have fallen off the pump. If check valve parts are in the reservoir, replace in pump and reassemble.

b. If sequencing valve is not shifting from low to high pressure range, replace hydraulic pump and valve assembly (part no. 81).

NOTE: *Major repairs should not be attempted in the field. See your nearest Hurst distributor.

GASOLINE ENGINE OPERATING INSTRUCTIONS

1 FUEL MIXTURE: In a separate, clean container, thoroughly mix one-half (2) pint of SAE No. 30 oil with each gallon of gasoline.

Use a regular grade of gasoline. High test ethyl gasoline is not recommended. Use any good quality outboard, 2-cycle or equivalent motor oil.

Strain the fuel mixture through a fine mesh screen when filling the fuel tank to remove any dirt or water that may be present.

2 STARTING PROCEDURE: Fill fuel tank with fuel prepared as outlined above. Wipe up all spilled gasoline.

a. Move choke to closed position.
b. Move the governor control lever to the fast or run position.
c. To facilitate starting, crank engine part way through compression to bleed off some compression, then crank with quick, short pulls. When engine starts, move choke to open position.
d. If the engine does not perform satisfactorily, perform the steps outlined under CARBURETOR ADJUSTMENTS.

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3 SPARK PLUGS: Check and clean spark plugs regularly. Set spark plug gap at .030 Torque to 10-15 foot pounds (120-180 inch pounds).

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4 *MAGNETO: Breaker point gap must be maintained at .020. Set points with cam follower at index mark on breaker cam.
a. If the magneto stator plate is loosened or removed for any reason, the timing and breaker point adjustment must be reset.
b. Place stator plate in position and install hold-down screws. Do not tighten screws.
c. Place stator plate in full retard position. This will be approximately 28 degrees BTDC. Do not advance the timing beyond this point.

Correct breaker point adjustment is important,. as the timing will automatically be advanced if the breaker point setting is greater than .020 or retarded if less than .020. Tighten stator hold-down screws securely.

---

5 CARBURETOR ADJUSTMENTS: Allow engine to run for approximately two minutes before making adjustments.
a. If engine "bogs down" and accelerates slowly, turn the low speed needle clockwise to attain acceptable performance.
b. If engine stalls on acceleration, turn the low speed needle counter-clockwise until performance is satisfactory.
c. If engine stalls under load, turn high speed needle counter-clockwise until engine runs smoothly under load. NOTE: A fraction of a turn, in most cases, will correct the problem.
d. General adjustment on carburetor (see drawing no. 1 on page 21).

AIR CLEANER: Under ordinary operating conditions, the air cleaner should be cleaned after use. Under extremely dirty conditions, more frequent cleaning is absolutely necessary. The repair of an engine damaged by dirt is not covered by warranty.

7 STORING ENGINE: The engine should be started and thoroughly warmed up under load every 30 days or less.

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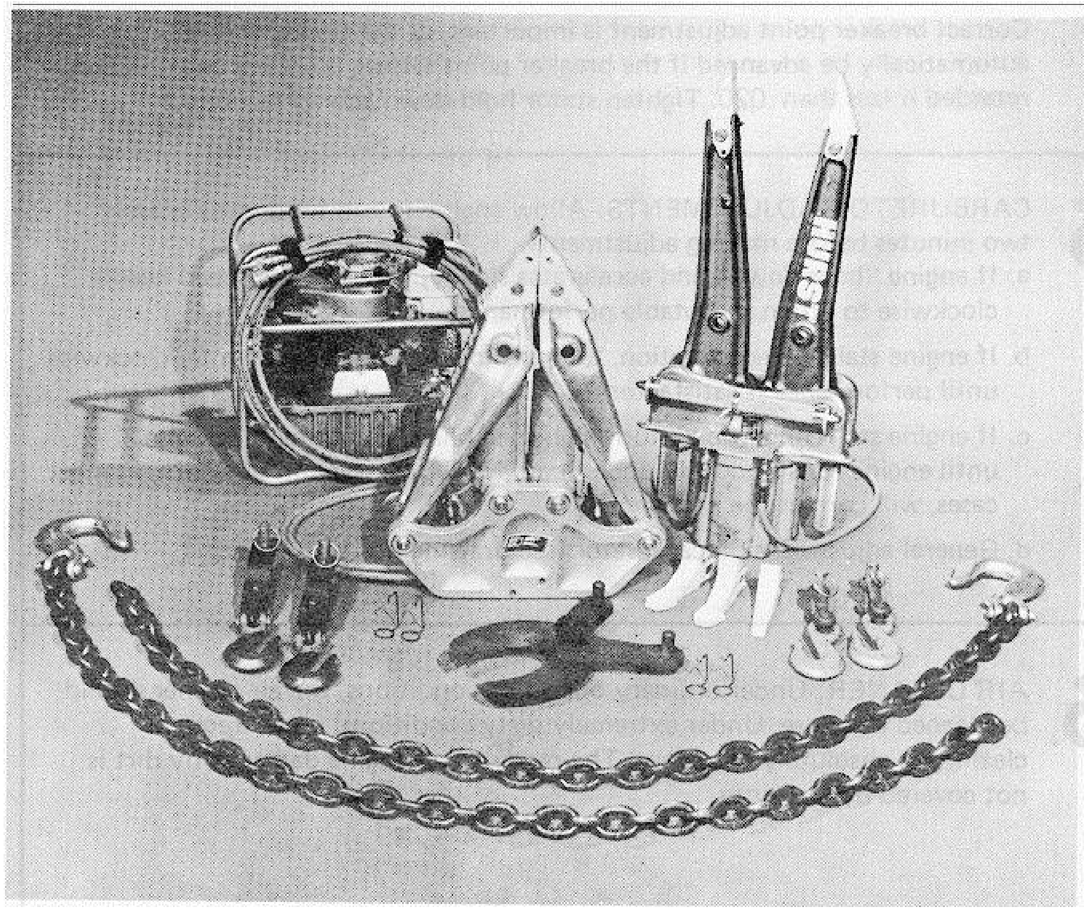
8 *GOVERNOR ADJUSTMENT: The unloaded speed is to be governed at 4000 R.P.M. maximum. To raise the governed speed, move the throttle stop clip toward the spark plug to lengthen lever travel. To lower the governed speed, move the throttle stop clip toward the carburetor to shorten the lever travel.
Excessive hunting or poor governor operation:

a. Check for debris around the carburetor and governor linkages.
b. Check to see that linkage operates freely throughout its normal motion, except for governor spring tension.
c. If the problem is not corrected through steps a. and b., see your nearest authorized dealer.

---

9 TO STOP ENGINE: Depress grounding switch to stop engine by shorting the magneto to ground. Switch is located under recoil starter handle.

NOTE: *Major repairs should not be attempted in the field. See your nearest Hurst distributor.



TROUBLE	CAUSE	WHAT TO DO
1. Engine fails to start	No fuel in tank	Fill tank
	Gasoline shut-off valve closed	Open shut-off valve
	Fuel line or fuel tank screen clogged	Clean fuel tine and screen
	Flooded	Close carburetor main adjustment needle and crank until engine starts, then readjust as indicated under "Carburetor Adjustment" on page 17
	Spark plug shorted or fouled	Install new spark plug
	Spark plug broken (cracked porcelain or electrodes broken)	Replace spark plug
	Magneto lead wire shorted,- broken or disconnected from spark plug	Replace lead wire or. attach to spark plug
	No spark from lead wire authorized dealer	Contact your nearest
	Breaker points out of adjustment	Reset breaker points to 020" gap
2. Engine hard to start	Water in fuel or stale fuel mixture	Drain fuel system and refill with fresh fuel
	Too much oil in fuel mixture	Drain and refill with correct mixture
	Engine over or under-choked	If flooded by over-choking, proceed according to instruction in previous section - if under-choked, move choke lever to closed position and crank two or three times
	Carburetor out of adjustment	See "Carburetor Adjustment" on page 17
	Gasket leaks (carburetor or reed plate gaskets)	Replace gaskets
	Weak spark at lead wire	Contact your nearest authorized dealer
	Breaker points out of adjustment	Reset breaker points to 020" gap

trouble shooting

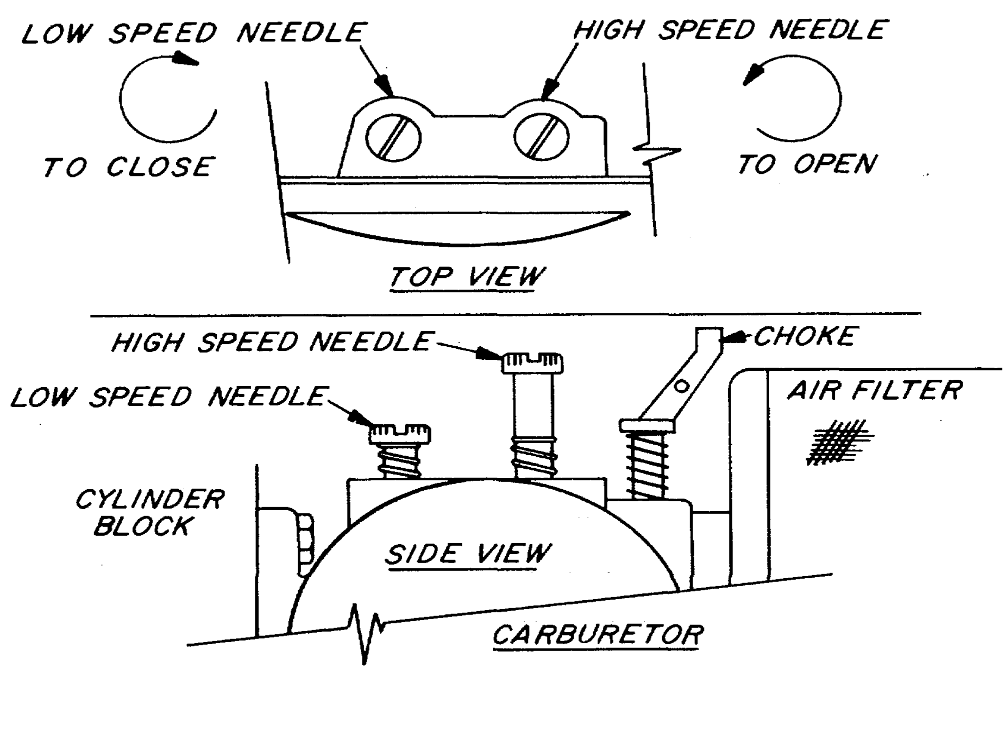
MODELS 32a / 26a

3. Engine misses	Dirt in fuel, line or carburetor	Remove and clean
	Carburetor improperly adjusted	See "Carburetor Adjustment" on page 17
	Spark plug fouled, broken, or incorrect gap setting	Clean or replace spark plug - set gap to .030"
	Weak or intermittent spark at lead wire	Contact your nearest authorized dealer
	Breaker points out of adjustment	Reset breaker points to 020" gap
4. Engine lacks power	Air cleaner clogged	Clean air cleaner
	Carburetor out of adjustment	See "Carburetor Adjustment" on page 17
	Muffler clogged	Clean carbon from muffler
	Clogged exhaust ports	Remove muffler, rotate engine until the piston is at bottom of cylinder - with a wooden scraper or blunt tool, remove all carbon from exhaust ports - be careful not to scratch or damage piston or cylinder walls - blow out loose carbon with compressed air - start engine and run briefly to remove all carbon, then install muffler and gasket
	Poor compression	Contact your nearest authorized dealer
	Breaker points out of adjustment	Reset breaker points to 020" gap
5. Engine overheats	Insufficient oil in fuel mixture	Mix fuel as shown under "Fuel Mixture" on page 16
	Air flow obstructed	Clean flywheel and cylinder fins and screen

6. Engine noisy or knocking	Loose flywheel	Tighten flywheel nut
	Spark plug - incorrect heat range	Replace with plug specified for engine
	Worn bearings, piston rings, or cylinder walls	Contact your nearest authorized dealer
7. Engine stalls under load	Carburetor main adjustment too lean	See "Carburetor Adjustment" on page 17
	Engine overheats	See "Fuel Mixture" on page 16

GENERAL CARBURETOR ADJUSTMENT. To adjust the carburetor, turn both high and low speed needles clockwise until they are seated. DO NOT force needles tightly closed as the seats will be damaged. Open the low speed needle one full turn by rotating it counter clockwise (see drawing below). Open the high speed needle five eights (5/8) of one turn by rotating it counter clockwise.

The one full turn for the low speed needle and five eights of one turn for the high speed needle are average settings and will allow the engine to start.

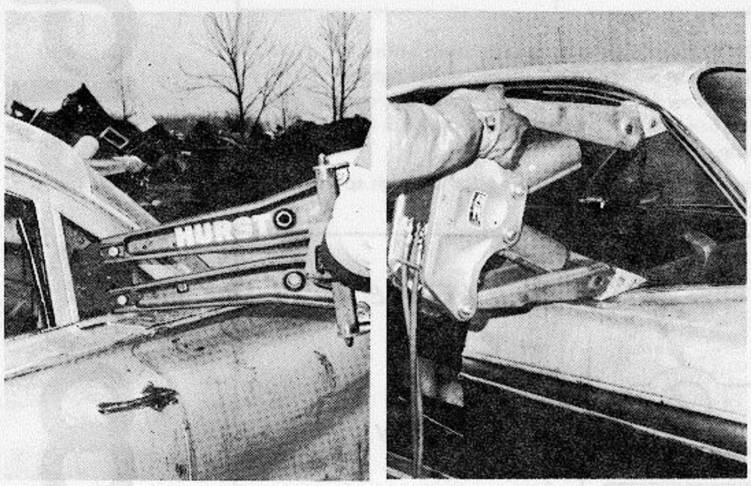


opening/cutting

MODELS

32a
26a

All contingencies and conditions cannot be anticipated in auto rescue/opening procedures. Experience alone is "the best teacher. " Some standard conditions are anticipated and remedial measures are described in the following paragraphs.

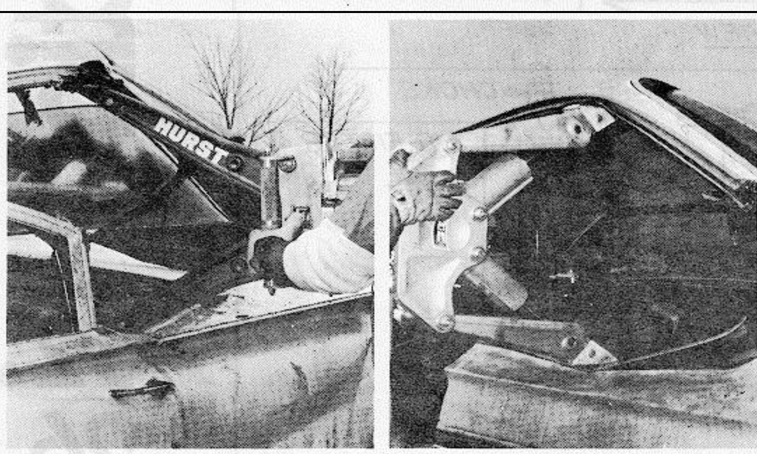


OPERATIONAL MODE (OPENING)

General Note: Attach automotive jaws to the Rescue Tool for the rescue procedure. Before using tool, recheck jaw retainer pins position. Pins must pass through jaws and arms.

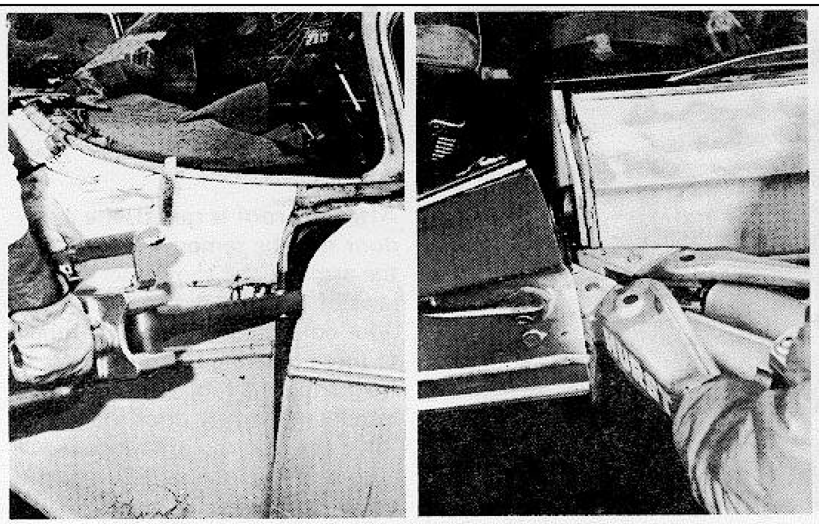
1

To raise the car roof, insert the jaws of the Rescue Tool between the roof of the automobile and the top of the door, hinged side, if possible, or any firm surface.



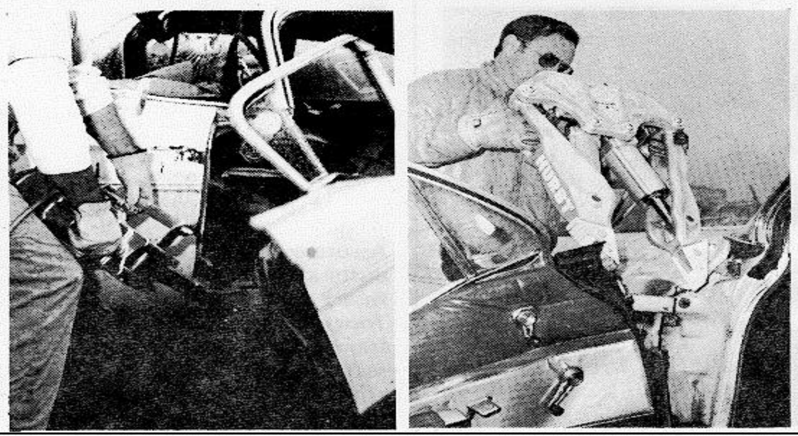
2

Move the operating thumb control to the "open" position. The tool will open insuring sufficient opening to survey the interior of the vehicle.



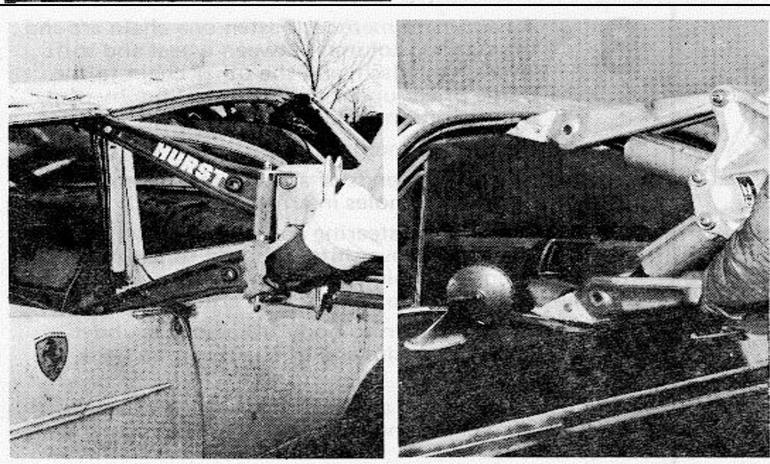
3

If a larger opening is required after lifting the roof, "close" the Rescue-Tool arms and insert the jaws between the body of the car and the door above or below the hinge or lock. Move the operating thumb controls to the "open" position.



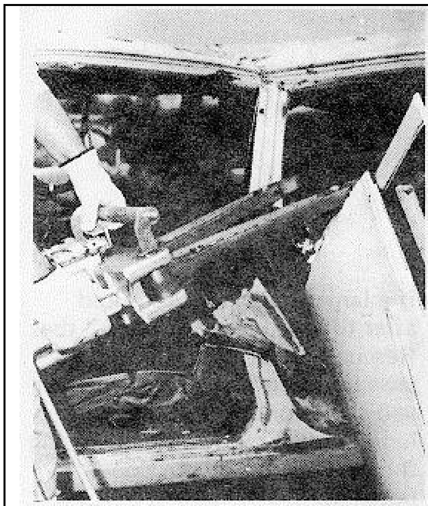
4

After the door is open, it may be completely removed by breaking the hinges repeating step 3.



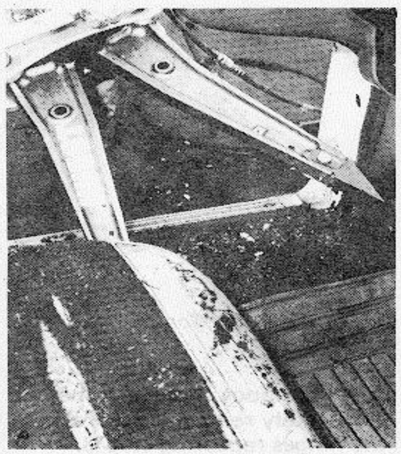
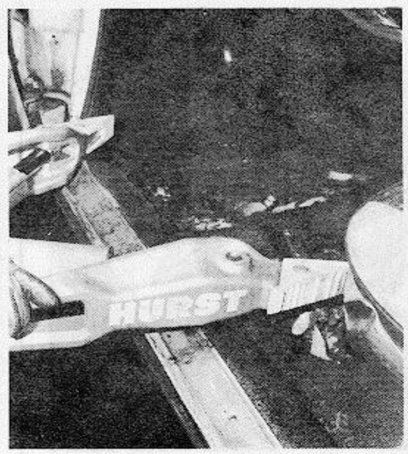
5

If additional roof clearance is necessary, move to the center of the vehicle and insert the jaws between the roof and the rear - door or rear quarter panel and repeat the roof raising procedure.



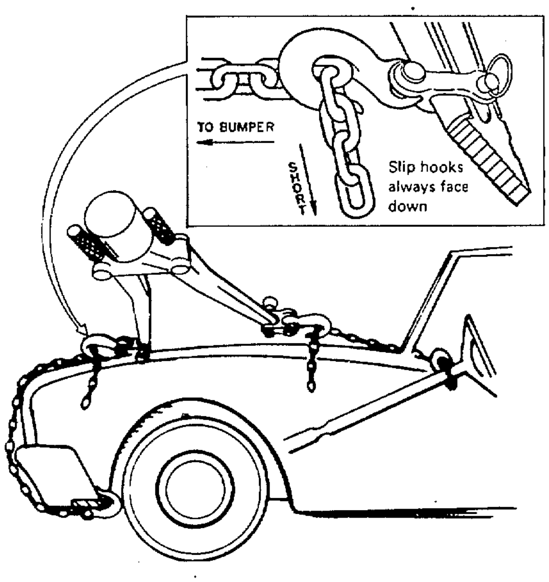

6

After the roof is raised, the rear door may be removed by: closing the arms of the tool; inserting the jaws of the tool between the door column and rear door hinge or lock; opening arms and fracturing the hinges. When removing the rear door, do not force the door column into the automobile, possibly injuring the occupant.

7

Assure additional access by pushing the front seat backward. Insert the jaws of the Rescue - Tool between the front door frame and the front edge of the seat and open the Rescue Tool arms. Seat contact should be slightly lower than door frame.



8 *An alternate method*: Fasten one chain around the steering column between wheel and shift lever or the dash, and the other chain to the frame of car under the bumper. Step-by-step, this operation includes:

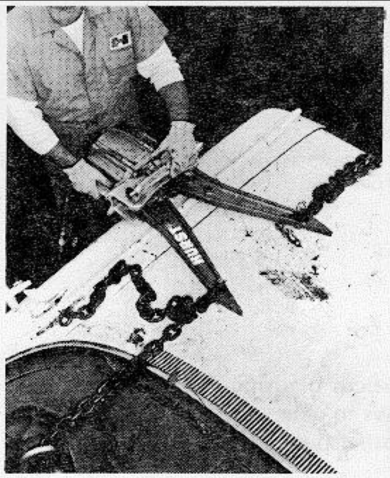
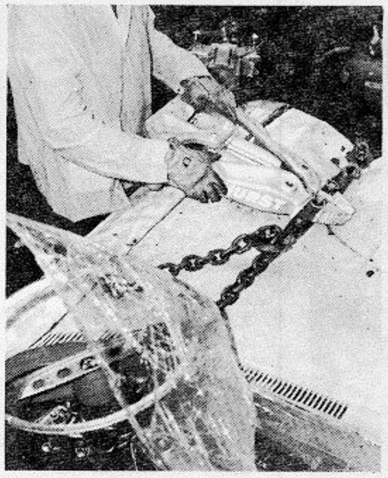
a. Open tool to maximum spread.

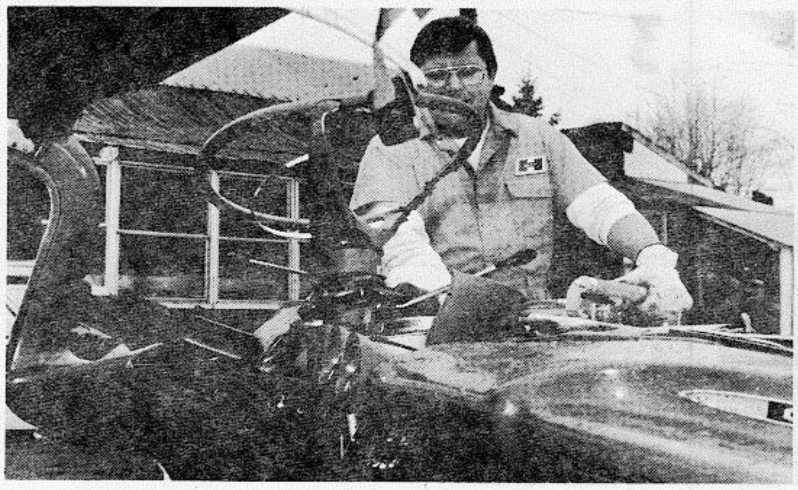
b. Place shackles over ends of arms. Insert detent pins through shackles and holes in arms.

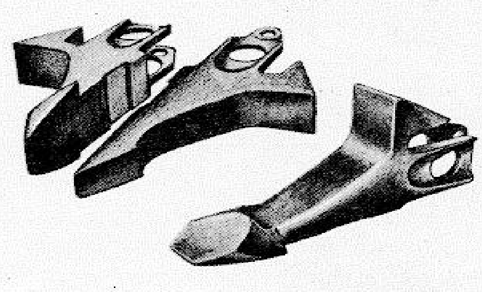
c. Wrap chain around steering column directly below steering wheel and above shift lever and fit slip hook attached to end of chain over chain. Insert opposite end of chain in grab hook at end of tool arm.

d. Attach another chain to body frame of car under bumper. Attach opposite end of chain in grab hook at end of tool arm.

e. Adjust chain length at grab hooks until all slack is removed from chain and the Rescue Tool is resting on the car hood.

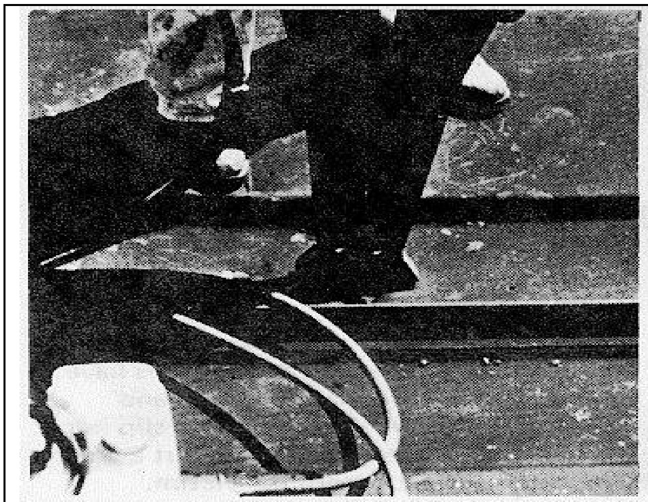
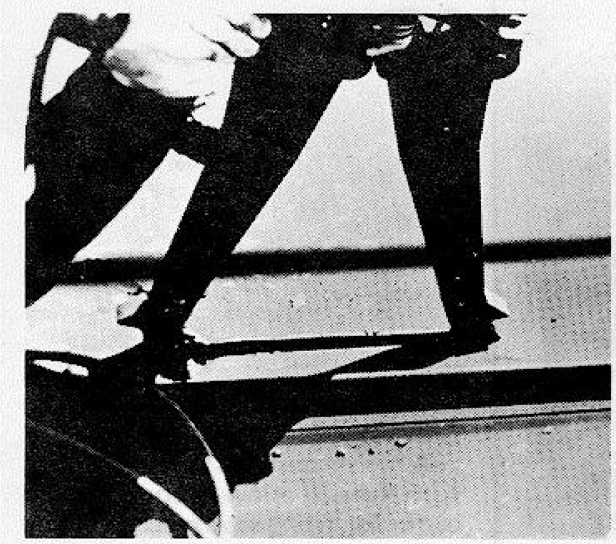
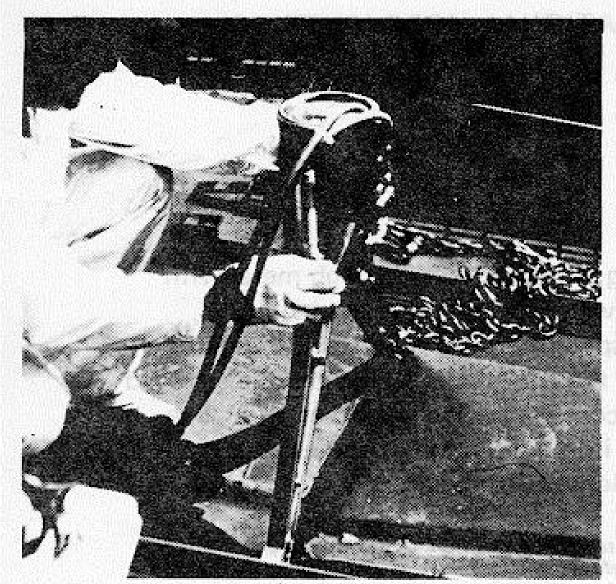
<table>
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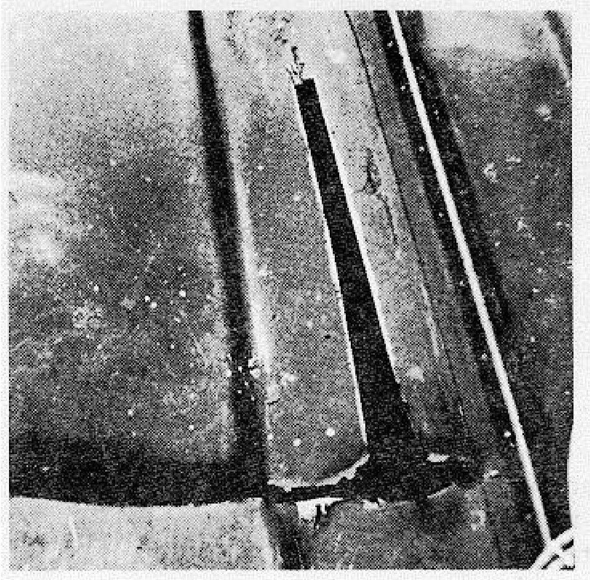
Lift steering column by closing tool. If the steering column has. not been pulled far enough from victim when the tool jaws have fully closed, open jaws and shorten chain length in slip hook. Pull steering column out a greater distance from the victim.</td></tr>
<tr><td></td><td>10

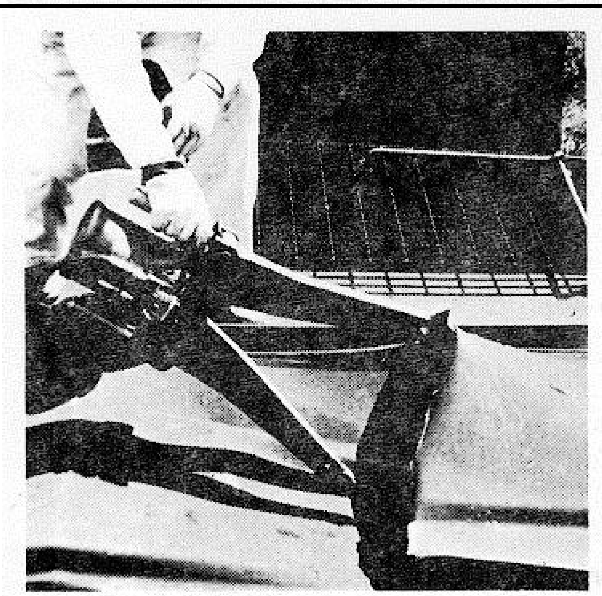
Generally, pulling the steering column or dash sufficiently forward will allow adequate room for front seat rescue.</td></tr>
<tr><td></td><td>1 OPERATIONAL MODE (CUTTING) Model 32A only

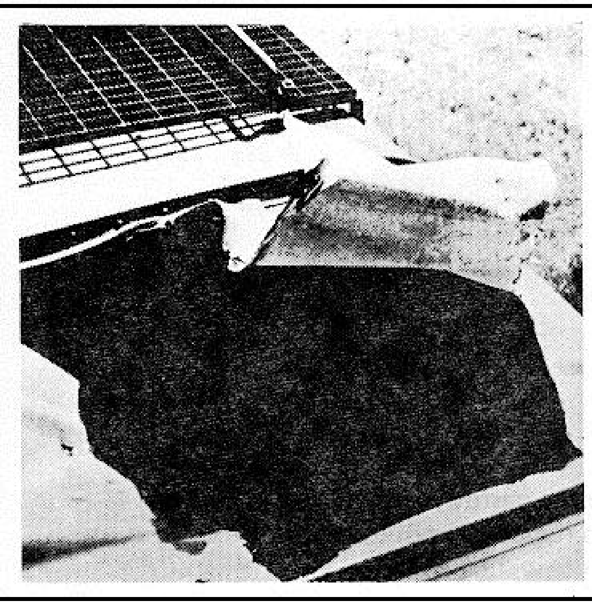
When cutting an access hole through metal with the Hurst Power Rescue Tool, remove the automotive spreading jaws and attach the cutting jaws. Attach the wide, smooth jaw on one arm and the narrow, concave jaw on the other arm* The tool will cut in the direction of the narrow jaw giving directional cutting.

*Recheck jaw retainer pins position. The pins must pass through jaws and arms before using tool.</td></tr>
</table>

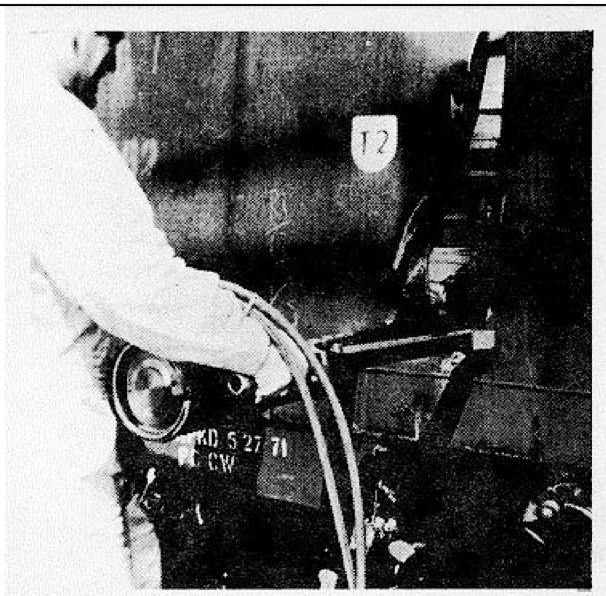
	**2** Pierce the material to be cut by using the weight of the tool to force the jaws to penetrate the metal. If more practical, any other piercing tool may be used for initial hole.
	**3** Operate the thumb controls-to the "open" position, spreading the arms of the rescue tool and cutting the metal surface.
	**4** Repeat this cutting procedure, opening the tool perpendicular to the first cut.

<table>
<tr><td></td><td>5

This second cut will provide an "L" shaped cutout in the material to be opened. Remove the narrow cutting jaw and replace with the other wide cutting jaw.</td></tr>
<tr><td></td><td>6

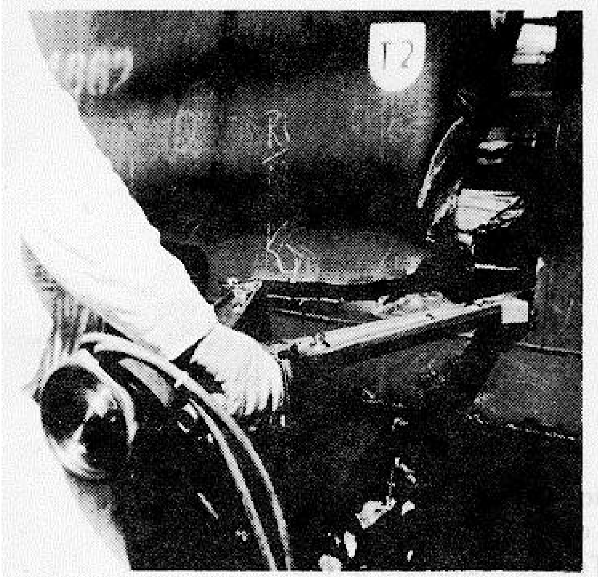
Insert the wide flat jaws into the "L" shaped opening and operate the thumb controls to open the Rescue Tool to maximum spread.</td></tr>
<tr><td></td><td>7

Pry "open" resulting flap of metal. This opening should afford entry or exit.</td></tr>
</table>



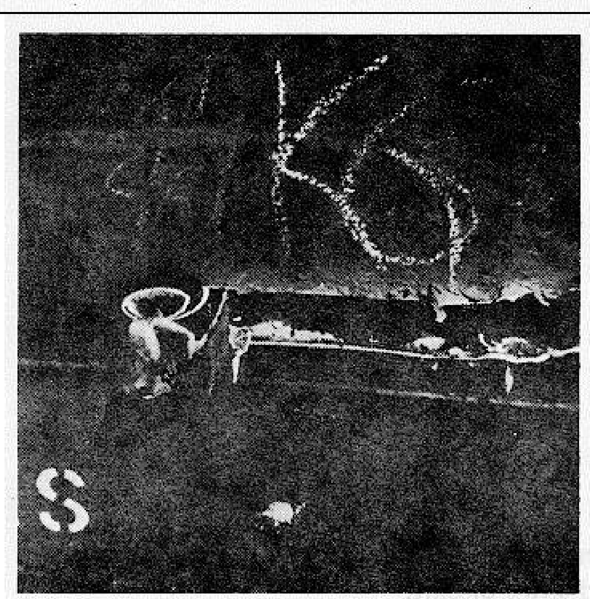
8

When it is not possible to force the points of the Rescue Tool through metal, use any existing opening to start cutting with the Rescue Tool.



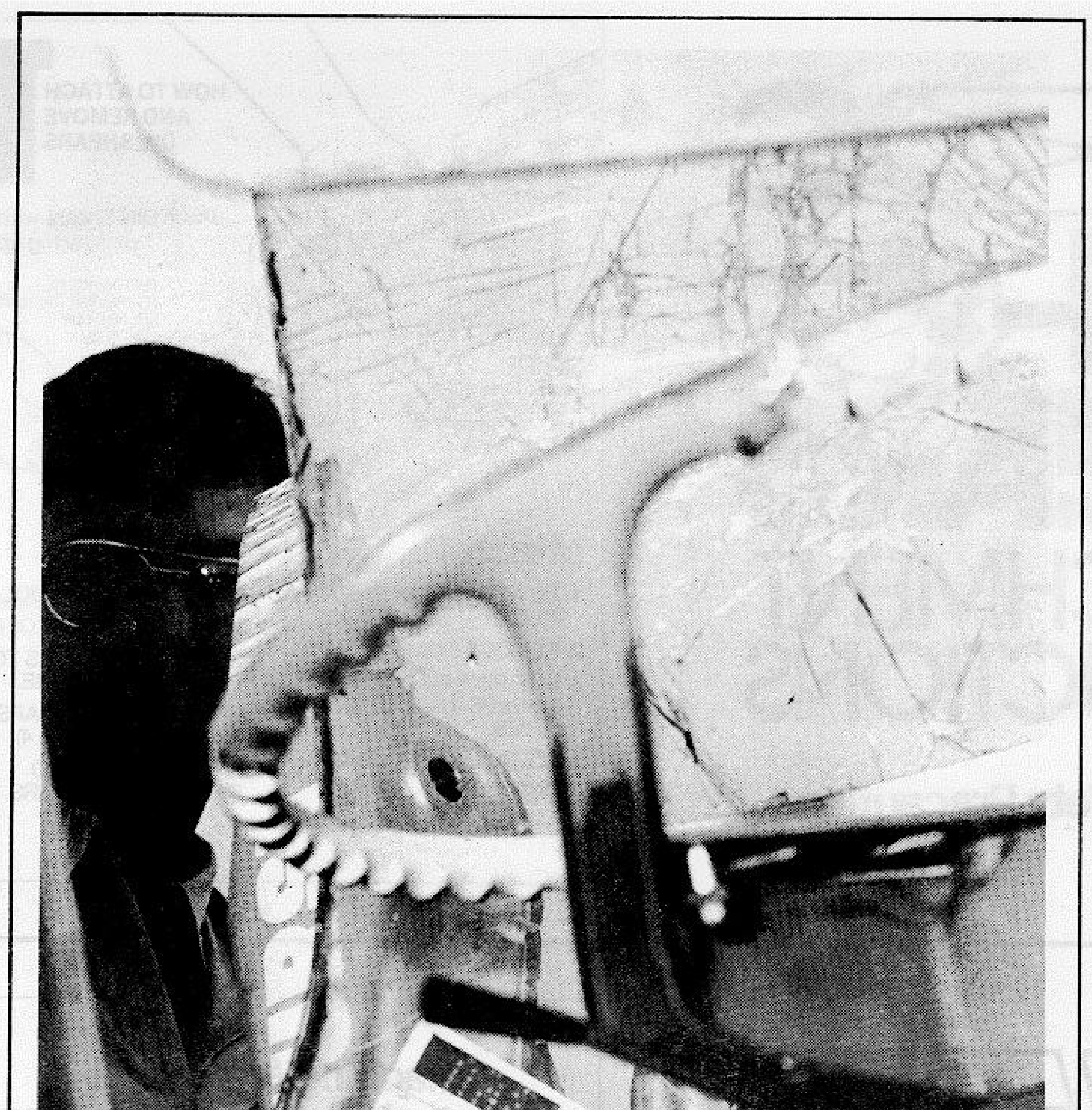
9

Follow cutting procedures number 3 through 7.



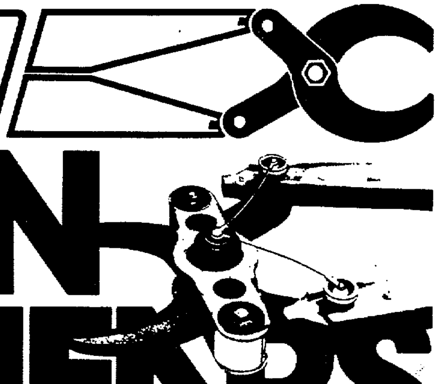
10

NOTE: Since the narrow cutting jaw has a concave face, the strip removed from the material cut with the Rescue Tool will be coiled.

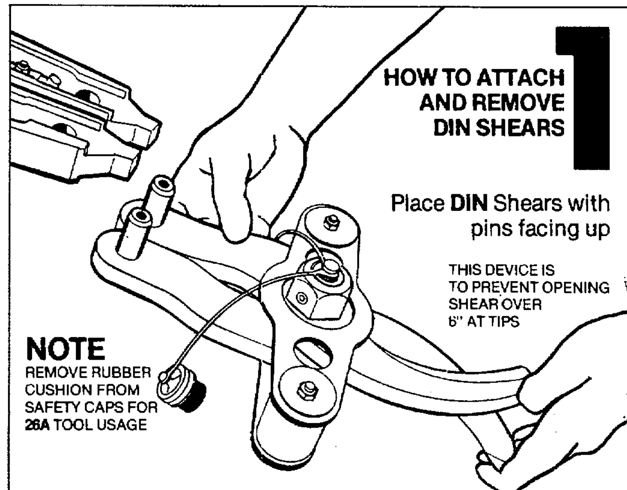


shearing

DIN SHEARS ATTACHMENT INSTRUCTIONS



see page four for **Safety Precautions**



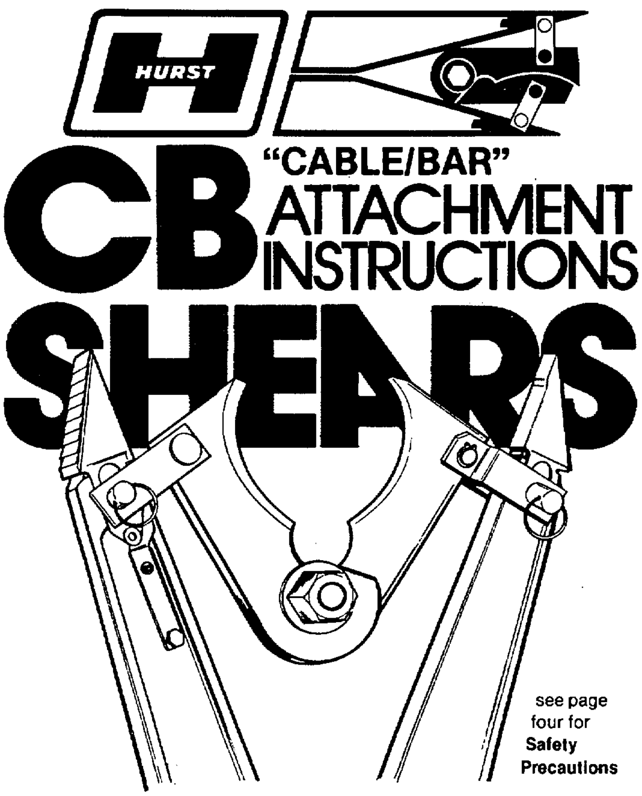
attach

1. TO ATTACH **DIN** SHEARS CLOSE ARMS OF TOOL.
2. REMOVE JAWS.
3. SLIP PINS OF **DIN** SHEARS INTO HOLES IN ARMS.
4. INSTALL SAFETY CAPS (REFER TO PAGE 3)

remove

1. CLOSE ARMS OF TOOL.
2. TURN POWER UNIT OFF.
3. OPERATE TRIGGERS TO RELEASE PRESSURE.
4. REMOVE SAFETY CAPS (See Illustrations 3 & 4)
5. PRESS PINS OUT TO REMOVE **DIN** SHEARS.

CB SHEARS "CABLE/BAR" ATTACHMENT INSTRUCTIONS

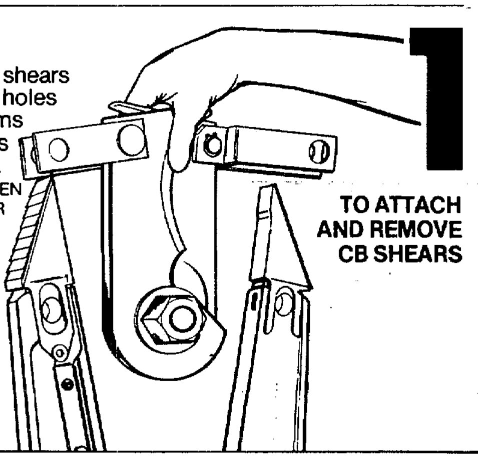


see page four for **Safety Precautions**

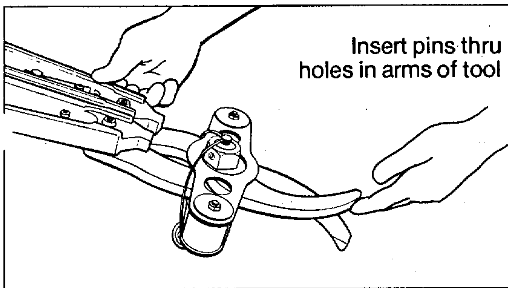
attaching & removal

1. OPEN ARMS OF TOOL APPROXIMATELY 8" AT TIP OF JAWS (DO NOT REMOVE JAWS AND SLIP **CB** SHEARS BETWEEN ARMS OF TOOL AND ALIGN HOLES IN ARMS WITH HOLES IN **CB** SHEAR SHACKLES.
2. INSTALL FASPINS (REFER TO PAGE 3)

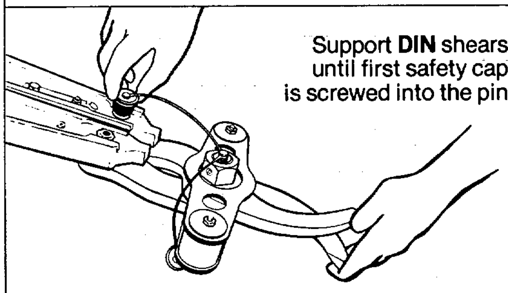
1. CLOSE ARMS OF TOOL UNTIL THEY STOP.
2. TURN POWER UNIT OFF
3. OPERATE TRIGGERS TO RELEASE PRESSURE.
4. REMOVE FASPINS.
5. REMOVE **CB** SHEARS.



2 Insert pins thru holes in arms of tool



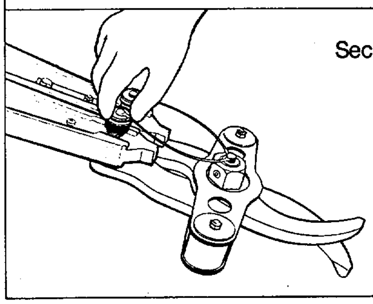
3 Support **DIN** shears until first safety cap is screwed into the pin



4 Secure both caps before using

DIN shears are ready to use

To remove **DIN** shears reverse procedure

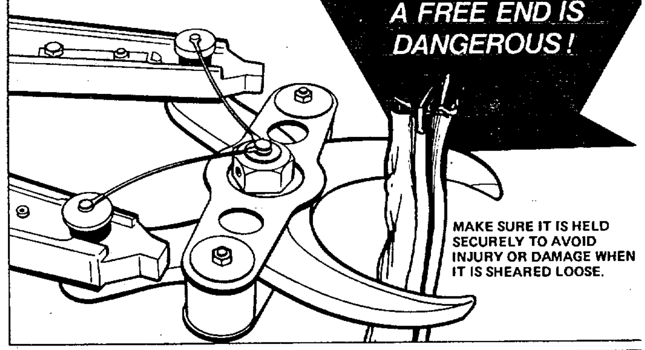


SAFETY PRECAUTIONS

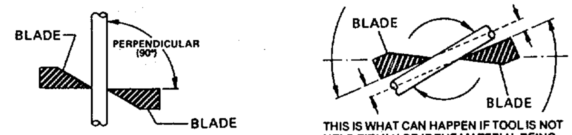
CAUTION

A FREE END IS DANGEROUS!

MAKE SURE IT IS HELD SECURELY TO AVOID INJURY OR DAMAGE WHEN IT IS SHEARED LOOSE.



CORRECT / INCORRECT



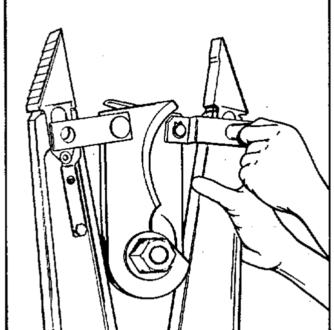
CORRECT: HOLD SHEARS PERPENDICULAR TO THE MATERIAL BEING SHEARED. MATERIAL CUT MUST BE SECURE SO THAT IT CANNOT TWIST.

INCORRECT: THIS IS WHAT CAN HAPPEN IF TOOL IS NOT HELD FIRMLY OR IF THE MATERIAL BEING CUT IS NOT SECURED. THE MATERIAL BEING CUT WILL TWIST UNDER THE BLADES AND WILL BE FORCED BETWEEN THE BLADE FLATS, RESULTING IN BLADE DAMAGE OR DESTRUCTION.

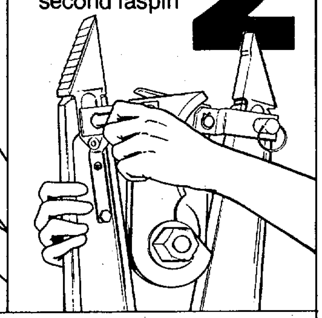
SHARPEN DIN SHEARS

Cutting edges will wear in normal use. Cutting of material that is harder or more massive may nick or damage the cutting edges of the Power Shear Blades. Shears should be returned to Hurst through your local HURST distributor for reconditioning service.

Insert faspins first

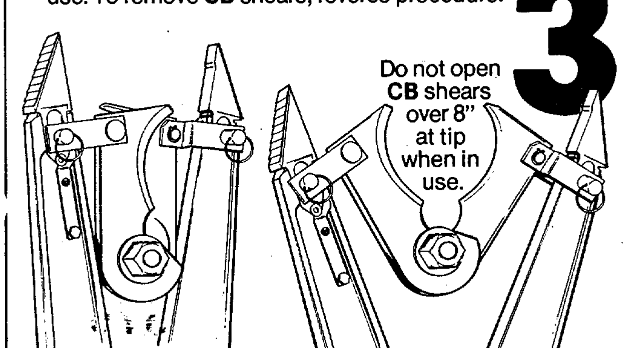


2 Adjust shears and tool and insert second faspin



3 With both faspins secure, **CB** shears are ready to use. To remove **CB** shears, reverse procedure.

Do not open **CB** shears over 8" at tip when in use.

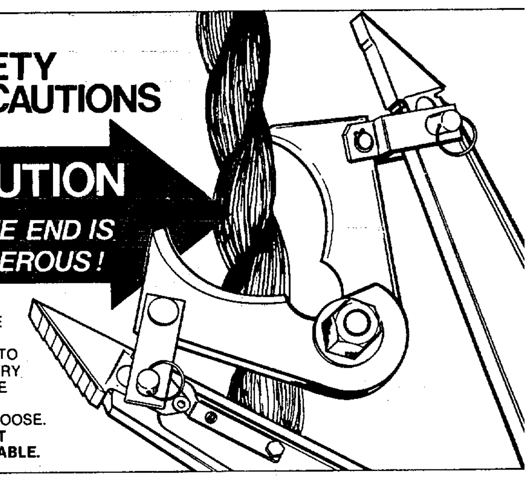


SAFETY PRECAUTIONS

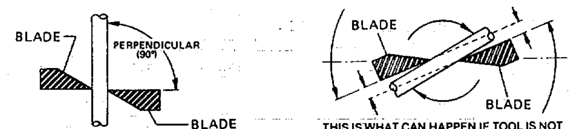
CAUTION

A FREE END IS DANGEROUS!

MAKE SURE IT IS HELD SECURELY TO AVOID INJURY OR DAMAGE WHEN IT IS SHEARED LOOSE. **DO NOT CUT TENSION CABLE.**



CORRECT / INCORRECT



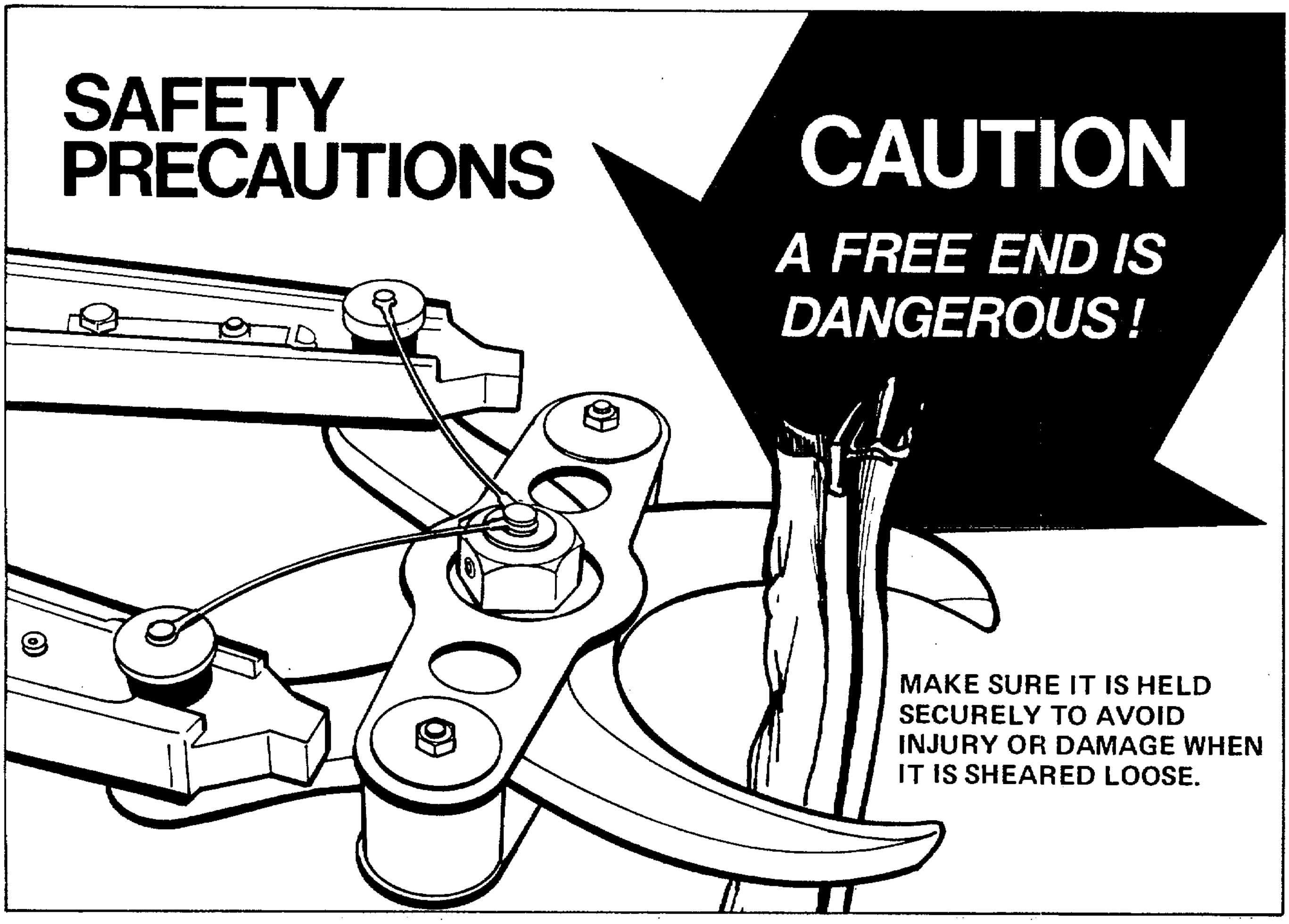
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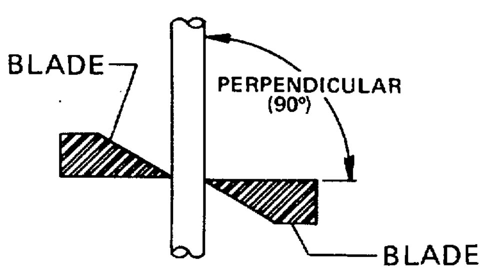
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SAFETY PRECAUTIONS

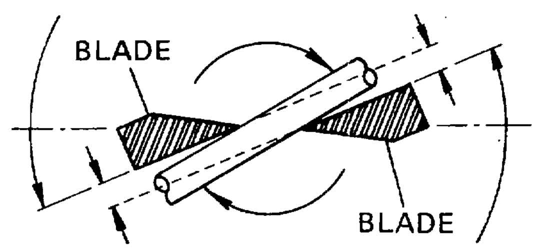


CORRECT



HOLD SHEARS PERPENDICULAR TO THE MATERIAL BEING SHEARED. MATERIAL CUT MUST BE SECURE SO THAT IT CANNOT TWIST.

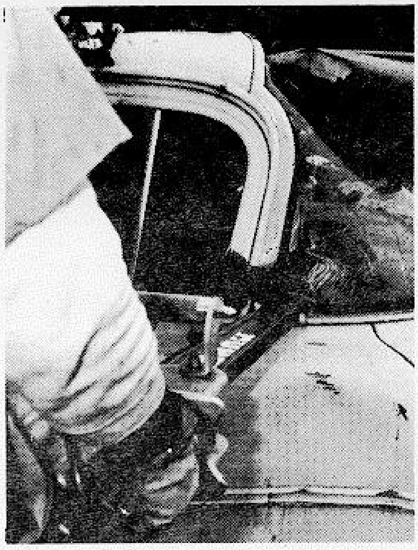
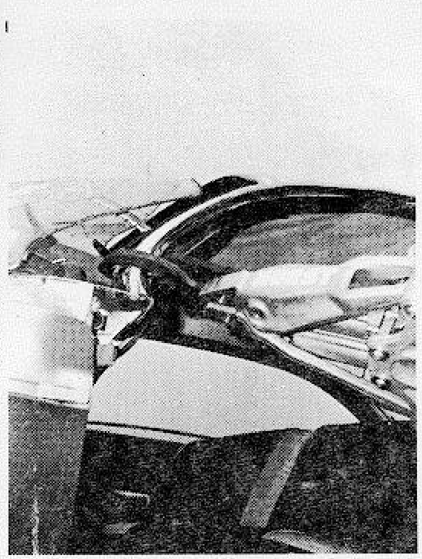
INCORRECT

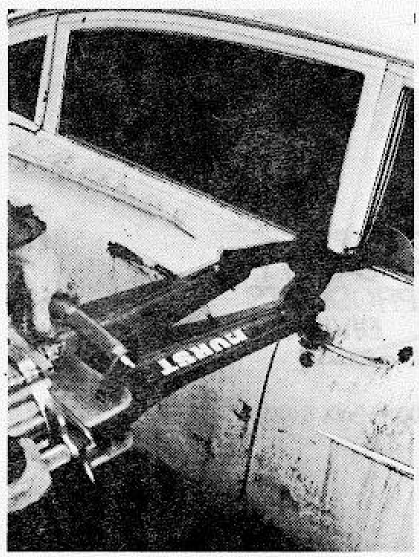
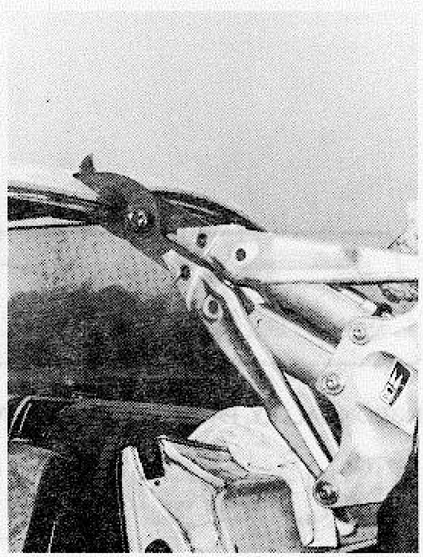
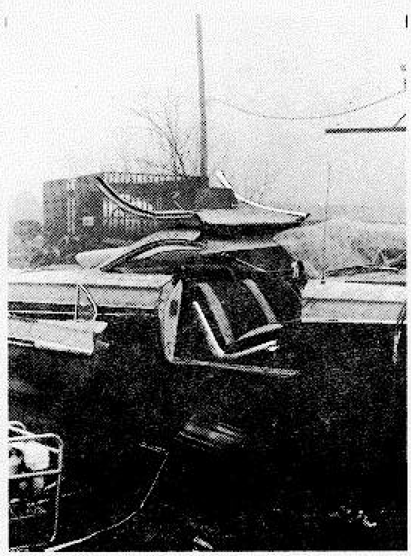


THIS IS WHAT CAN HAPPEN IF TOOL IS NOT HELD FIRMLY OR IF THE MATERIAL BEING CUT IS NOT SECURED. THE MATERIAL BEING CUT WILL TWIST UNDER THE BLADES AND WILL BE FORCED BETWEEN THE BLADE FLATS, RESULTING IN BLADE DAMAGE OR DESTRUCTION.

SHARPEN SHEARS

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<table>
<tr><td> </td><td>SHEARING

Hold the tool firmly so the shears are at right angles, perpendicular, to the pillar being sheared.</td></tr>
<tr><td> </td><td>Vehicle doors do not need to be opened or removed to shear roof support columns. If only front seat access is required, shear front pillars, notch roof on both sides, and fold the roof back.</td></tr>
<tr><td> </td><td>The roof can be totally removed by shearing all support pillars and lifting it off, or partially removed by shearing necessary support pillars, notching the roof on both sides, and folding back.</td></tr>
</table>

HURST PERFORMANCE INC.

SAFETY PRODUCTS DIVISION

1957 PIONEER RD., HUNTINGDON VALLEY, PA 19006 • (215) 672 1700 • TWX 510-665-5425

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The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 decagram = 10 grams = .35 ounce
1 hectogram = 10 decagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

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